# INDEX

| | Original | Print |
|---|---|---|
| Proceedings in the United States Court of Appeals for the Eighth Circuit | | |
| Petition for review of order of Federal Power Commission | 2 | 1 |
| Clerk's note re Appendices A and B | 16 | 15 |
| Proceedings before the Federal Power Commission | 16 | 16 |
| Exhibit 1—Declaration of Intention | 16 | 16 |
| Notice of declaration of intention | 25 | 23 |
| Order fixing hearing | 26 | 24 |
| Designation of presiding examiner | 27 | 25 |
| Transcript of hearing before presiding examiner | 28 | 26 |
| Appearances | 28 | 26 |
| Statement of presiding examiner | 29 | 26 |
| Statement on behalf of Union Electric Company | 32 | 30 |
| Statement on behalf of Federal Power Commission | 37 | 35 |
| Colloquy between presiding examiner and counsel re offers in evidence | 41 | 39 |
| Errata to transcript of hearing | 66 | 62 |
| Stipulation of facts | 69 | 64 |
| Decision of Presiding Examiner Samuel Binder | 85 | 79 |
| Presiding examiner's certification of the record accompanying initial decision | 106 | 100 |
| Erratum notice | 113 | 104 |
| Exceptions of Commission staff counsel to decision of presiding examiner | 113 | 105 |
| Exceptions and supporting reasons of Union Electric Company to decision of presiding examiner | 117 | 108 |
| Opinion and order upon a declaration of intention | 151 | 143 |
| Application for rehearing by Union Electric Company | 164 | 156 |
| Order denying application for rehearing | 181 | 171 |
| Exhibits: | | |
| 2A—Location Map—Union Electric Co., Taum Sauk Project | 183 | 173 |
| 2B—River profile, flow duration curve, and flow hydrographs | 185 | 175 |
| 2C—Load curve, pool volume curves and generator output versus turbine discharge curves | 187 | 177 |
| 3A—Plot Plan | 189 | 179 |
| 3C—Water conduit and channel profile and cross sections | 191 | 181 |
| 3D—Power house site plan | 193 | 183 |
| 3E—Power house plans and sections | 195 | 185 |
| 3G—Access roads and relocated county road | 197 | 187 |
| (Above exhibits were exhibits to Declaration of Intention) | | |

**Proceedings before the Federal Power Commission—Con.**

**Exhibits—Continued**

| | Original | Print |
|---|---|---|
| 4A—Letter from Union Electric Company to Federal Power Commission, dated February 24, 1960 | 198 | 188 |
| 4B—Report and Order of Missouri Public Service Commission in Case No. 14,390, dated February 23, 1960 | 199 | 188 |
| 4C—Order of County Court of Reynolds County, Missouri, dated December 21, 1959 | 204 | 193 |
| 5—Letter from Missouri Public Service Commission to Federal Power Commission, dated March 1, 1960 | 206 | 194 |
| Letter from J. H. Gutride, Secretary, Federal Power Commission, to Union Electric Company, dated March 21, 1960 | 207 | 196 |
| 6A—Letter from Union Electric Company to Federal Power Commission, dated March 29, 1960, and enclosed Hydrograph—Operation with recurrence of June 1945 Flood | 208 | 197 |
| 6B—Hydrograph—Curves, showing motor input versus pump discharge (enclosed with letter of March 29, 1960) | 213 | 201 |
| 6C—Hydrograph—Curves showing generator output versus turbine discharge (enclosed with letter of March 29, 1960) | 215 | 203 |
| Hydrograph—Synthesis of storm of June 1945, Black River above Annapolis (enclosed with letter of March 29, 1960) | 217 | 205 |
| 7A—Letter from Union Electric Company to Federal Power Commission, enclosing report, dated April 12, 1960 | 218 | 206 |
| 7B—Report of Study-Effect of operation on high flows of East Fork of Black River (enclosed with letter of April 12, 1960) | 219 | 207 |
| Hydrographs showing effect of operation of plant on high flows of East Fork of Black River (nine figures) | 223 | 211 |
| 8—License application filed by Union Electric Company with Federal Power Commission on June 10, 1960 | 225 | 213 |
| Exhibits J, K and L, Sheet 3, and Exhibit L, Sheet 4, Exhibit L, Sheet 5 filed with License Application are not reproduced here; Exhibits being same as Exhibits 2A, 3A, 3C, 3D and 3E respectively. | | |
| 9A—Resolution of Board of Directors of Union Electric Company, adopted December 11, 1959 (Exhibit B filed with License Application) | 229 | 217 |
| 9B—Statement of nature, extent and ownership of water rights (Exhibit E filed with License Application) | 230 | 217 |

Proceedings before the Federal Power Commission—Con.

Exhibits—Continued

| | Original | Print |
|---|---|---|
| 9F—Lower dam site plan and general design (Exhibit L Sheet 1 filed by Union Electric Company with License Application) | 231 | 219 |
| 9K—General description of mechanical, electrical and transmission equipment (Exhibit M filed by Union Electric Company with License Application) | 233 | 221 |
| 9L—Statement of time for beginning and completing construction (Exhibit O filed by Union Electric Company with License Application) | 234 | 222 |
| 14A—Flow duration curve, approximate tail water rating curve and curves showing estimated plant capability versus head (Exhibit I filed December 7, 1960, amending Exhibit I filed September 5, 1960) | 235 | 223 |
| 14B—Upper and lower pool area and volume curves (Exhibit K Sheet 2, filed by Union Electric Company on December 7, 1960, as supplementary exhibit to License Application) | 237 | 225 |
| 14C—Upper pool, plan and sections (Exhibit L Sheet 2 filed by Union Electric Company on December 7, 1960, amending Exhibit L Sheet 2 filed by Union Electric Company on June 10, 1960) | 239 | 227 |
| Exhibits J, K and L, Sheet 3, and Exhibit L, Sheet 4, Exhibit L, Sheet 5 filed with License Application are not reproduced here; Exhibits being same as Exhibits 2A, 3A, 3C, 3D and 3E respectively. | | |
| 10—Letter from Corps of Engineers, Department of Army, to Federal Power Commission, dated August 18, 1960 | 240 | 228 |
| 12A—Letter from the Federal Power Commission to the Union Electric Company, dated September 13, 1960 | 241 | 229 |
| 12B—Letter from the Department of the Interior to Federal Power Commission, dated September 2, 1960 | 241 | 229 |
| 13—Letter from the Union Electric Company to the Federal Power Commission, dated September 19, 1960 | 244 | 231 |
| 15—Map of basin of East Fork of Black River and upper basin of Black River | 247 | 235 |
| Item M—Letter from National Forest Reservation Commission to Federal Power Commission, dated January 26, 1961, transmitting documents | 248 | 236 |
| Letter from Department of Agriculture to National Forest Reservation Commission, dated August 29, 1933 | 249 | 236 |

Proceedings before the Federal Power Commission—Con.

Exhibits—Continued

| | Original | Print |
|---|---|---|
| Minutes of the Meeting of the National Forest Reservation Commission, August 30, 1933 | 250 | 237 |
| Chart showing tentative program of proposed new National Forest purchase units and additions to existing units | 257 | 243 |
| Item I—Bulletin entitled "Clark National Forest Purchase Unit" published in 1937 by National Forest Service, Department of Agriculture | 261 | 247 |
| Item II—A Proclamation by the President on the Clark National Forest—Missouri (4 Federal Register 3908) | 282 | 268 |
| Further proceedings in the United States Court of Appeals for the Eighth Circuit | 283 | 269 |
| Opinion, Gibson, J. | 283 | 269 |
| Decree | 319 | 298 |
| Respondent's petition for rehearing | 320 | 299 |
| Order denying rehearing | 324 | 301 |
| Order staying issuance of certified copy of decree | 325 | 302 |
| Order further staying issuance of certified copies of decree | 326 | 302 |
| Clerk's certificate (omitted in printing) | 327 | 302 |
| Order extending time to file petition for writ of certiorari | 328 | 303 |
| Order allowing certiorari | 329 | 303 |

[1] [File endorsement omitted]
[2] In United States Court of Appeals for the Eighth Circuit

No. 17,142.

UNION ELECTRIC COMPANY, A CORPORATION, PETITIONER
*v.*
FEDERAL POWER COMMISSION, RESPONDENT

*Petition for Review of Order of Federal Power Commission—*
*Filed August 17, 1962*

To the United States Court of Appeals for the Eighth Circuit:

Pursuant to the provisions of Section 313(b) of the Federal Power Act (U.S.C., Title 16, § 825L(b)), Union Electric Company (Petitioner), a corporation of Missouri, hereby petitions the Court for review of the hereinafter-described Opinion and Order of the United States Federal Power Commission (Commission), including the findings of fact and conclusions of the law upon which said Order of the Commission was based.

*The Order* referred to was issued by the Commission—with its Opinion designated "Opinion No. 356"—on the 19th day of April, 1962, in a proceeding before the Commission, captioned "In the Matter of Union Electric Company—Docket No. E–6927," to which proceeding Union Electric Company (Petitioner here) was a party. The Order became final on June 20, 1962, when the Commission issued its order denying the application for rehearing which had theretofore been duly filed by Petitioner.

The Commission's Opinion and Order of April 19, 1962, are based in part upon the prior findings of fact and decision of Commission Examiner Samuel Binder, which the Commission adopted. Said prior findings and opinion of the Examiner are therefore included in the subject matter of which review is sought under this petition.

In compliance with Rule 27(a) of this Court, Petitioner submits the following statement of (1) the nature of the proceedings as to which review is sought, (2) the facts upon which venue is based, (3) the grounds on which relief is sought, and (4) the relief prayed.

[3] 1. *Nature of the Proceedings as to Which Review Is Sought.*

1–A. *The Statute.* The proceeding before the Commission was initiated pursuant to the provisions of Section 23(b) of Part I of the Federal Power Act (16 U.S.C., § 817), the pertinent provisions of which (beginning with the second sentence thereof) are as follows:

> "* * * Any person, association, corporation, State, or municipality intending to construct a dam or other project works across, along, over, or in any stream or part thereof, *other than those defined in this chapter as navigable waters, and over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States* shall before such construction file declaration of such intention with the Commission, whereupon the Commission shall cause immediate investigation of such proposed construction to be made, and *if upon investigation it shall find that the interests of interstate or foreign commerce would be affected by such proposed construction*, such person, association, corporation, State, or municipality shall not construct, maintain, or operate such dam or other project works until it shall have applied for and shall have received a license under the provisions of this chapter. If the Commission shall not so find, and if no public lands or reservations are affected, permission is granted to construct such dam or other project works in such stream upon compliance with State laws. June 10, 1920, c. 285, § 23, 41 Stat. 1075; Aug. 26, 1935, c. 687, Title II, § 210, 49 Stat. 846." [Emphasis supplied.]
>
> (16 U.S.C., § 817.)

1–B. *Declaration of Intention.* Pursuant to the above-quoted statutory provisions Petitioner filed with the Federal Power Commission on February 1, 1960, a verified declaration of its intention to construct, operate and maintain in Reynolds County, Missouri, what is described in the record as a pumped-storage electric generating station to be known as its "Taum Sauk Plant."

[4] 1-C. *Description of the Proposed Project.* As stated in the verified Declaration—and subsequently shown by evidence in the proceeding—

(i) The location of the proposed Taum Sauk Plant is on and along a portion of the East Fork of the Black River, at and about the confluence of that stream with Taum Sauk Creek in Reynolds County, Missouri.

(ii) Neither Taum Sauk Creek nor the East Fork of the Black River is navigable; but at a point approximately four miles below the proposed project the East Fork flows into the main stream of the Black River, which the Commission found to be navigable from that point to its mouth in the State of Arkansas, where it flows into the White River—the latter stream being a tributary of the Mississippi River.

(iii) The Taum Sauk Plant will include a concrete dam across the East Fork—with its foundation in the bed of the stream—at a point four miles above the confluence of the East Fork with the main stream of the Black River. The bed of the East Fork at the site of the dam is approximately 700 feet above mean sea level. The dam will contain sluice gates—between 715 and 734 feet above mean sea level—and will have a free crest spillway at 750 feet above mean sea level. It will create a pool (referred to in the record as the "lower pool"), with a surface area of from 200 to 395 acres (depending on the water level in the pool at a given time), containing from 2000 to 6350 acre-feet of water, the difference (4350 acre-feet) being the quantity of water used in the operation of the plant.

(iv) The plant will also include a high storage reservoir (referred to in the record as the "upper pool") to be constructed at the top of a "mountain" near the stream by building a rock-fill concrete-faced dike, surrounding a surface area of approximately 55 acres. This upper pool will have a capacity of approximately

4350 acre-feet of water, the top and maximum water surface to be at elevation 1625 feet and the bottom and minimum water surface to be at elevation 1515 feet above mean sea level. A pressure tunnel and conduit, approximately 6400 feet in length, will connect the upper pool with a pumping and gen-[5]erating station to be located on an open channel running to the lower pool.

(v) The pumping and generating station will house two reversible pump-turbine units—to be used, in alternating cycles, (a) to pump water from the lower pool to the high reservoir, thereby forming the upper pool, and (b) to operate electric generators when water in the upper pool is permitted to flow through the pressure tunnel and open channel to the lower pool.

(vi) The operations to be conducted will consist of (a) pumping water from the lower pool to the upper pool during the hours when the demand for electricity is low—using for that purpose the reversible turbines as pumps under power supplied from available generating units—and (b) allowing the water thus stored in the upper pool to flow through the pressure tunnel and open channel, and thus to operate the turbines by water power for generation of electricity during periods of peak or high demand. After passing the turbines the water will discharge through the open channel into the lower pool, thus completing the cycle of operation and returning to the lower pool the water previously pumped to the upper pool.

(vii) The time required for the accumulation of water to form the lower pool will depend upon the rate at which water happens to be flowing in the East Fork. The rate of flow in that stream varies from time to time, the average flow being at the rate of about 105 cubic feet per second. If 50 cubic feet per second of the average flow were retained—the remainder of the flow being allowed to pass downstream—the accumulation of water to the required level in the lower pool would require about 63 days. If all of the flow (at the average rate) were retained, the lower pool would be filled in less than 32 days. It was stipulated by the parties in the proceeding below that, assuming the average flow of 105 c.f.s. in the East Fork and the average flow of 582 c.f.s. in the Black River at the gaging station (Annapolis) maintained by the Government about eleven miles below the mouth of the East Fork, the stage of the Black River [6] at that point would be reduced during the filling operation by 0.1 feet, if one-half of the average flow of the East Fork were retained, and by 0.2 feet if all of that flow were retained.

(viii) Under the plan of the project and of contemplated operation, as described in Petitioner's Declaration of Intention, none of the flow of the East Fork would be retained after the initial filling of the lower pool—all of that flow (whether at a high, low or average rate) passing through the sluiceways of the dam or over the crest thereof to the lower stream. The volume of water once impounded in the lower pool would be used over and over in the cycle of pumping water from the lower to the upper pool and permitting it to flow back, through the pressure tunnel and open channel, to the lower pool.

(ix) Prior to the date of the hearing in this proceeding Petitioner had acquired fee simple title to substantially all lands to be occupied by the project, including the lands riparian to the East Fork and Taum Sauk Creek; and that fact is shown by the record. (Since the date of the hearing Petitioner has acquired fee simple title to the remainder of such lands.) Under the law of Missouri, both the East Fork and Taum Sauk Creek are non-navigable waterways, and a riparian owner may make a reasonable use of the water therein.

(x) The Public Service Commission of Missouri, which has jurisdiction over Petitioner as a public utility corporation and over the construction by Petitioner of new facilities for the generation of electricity to be used in the course of Petitioner's public utility operations, has duly issued its order (which was received in evidence and made a part of the record in the proceeding below) authorizing Petitioner to proceed with the construction of the Taum Sauk project.

(xi) Petitioner proposes to construct an over-land transmission line from the generating station of the project, to be interconnected with other facilities of Petitioner by which it transmits electricity to various points in Missouri and, in some instances, to Illinois and to Iowa. The construction of that transmission [7] line, which will constitute a part of the project, is subject to authorization by the Public Service Commission of Missouri. (Since the date of the hearing that authorization has been obtained.)

(xii) No State or Federal lands or reservations will be occupied or flooded by the proposed Taum Sauk project; and the transmission line leading from the powerhouse of the project, which will not occupy or touch any part of any of the streams referred to in this petition or any Federal lands or reservations, will be located upon private right-of-way except in those instances in which it will cross—or occupy parts of—State or County road areas pursuant to franchises or permits granted by State or County authorities.

1–D. *Hearing on Declaration of Intention.* After the Declaration of Intention had been filed by Petitioner, the Commission ordered that a public hearing be held respecting the question of whether the construction, operation and maintenance of the project described in the Declaration would be subject to the licensing provisions of the Federal Power Act. Examiner Samuel Binder was designated by the Commission to preside at that hearing. The hearing was held, with Examiner Binder presiding, on the 31st day of January 1961 in Washington, D.C.—Petitioner being represented by an attorney who appeared on its behalf and the Staff of the Commission being represented by one of Staff counsel, who was assisted by three consultants, also members of the Commission Staff.

Upon the Stipulation of Facts and other evidence offered and received at the hearing and upon the briefs filed on behalf of the Commission Staff and on behalf of Petitioner, respectively, Petitioner's declaration of its intention to construct the project in question was submitted to the Commission pursuant to the provisions of Section 23(b) of the Federal Power Act (16 U.S.C. § 817).

1–E. *Initial Decision of the Presiding Examiner and Exceptions Thereto.* Pursuant to the Commission's Rules of Practice and Procedure, Presiding Examiner Binder certified and filed with the Secretary of the Commission the record of the hearing with his report, entitled "Decision", [8] of findings and conclusions and his recommendation of an order to be entered by the Commission. Under the Commission's rules said report constituted an "Initial Decision" subject to exceptions and to review and final decision by the Commission. Since certain of the Examiner's findings and conclusions (expressed in the Initial Decision) were later adopted by the Commission in its final decision, a copy of the Initial Decision by the Examiner is hereto attached as "Appendix A."

Within the time allowed by the Commission's rules exceptions to the Initial Decision by the Examiner were filed with the Commission, both by Petitioner and by the Commission's Staff; and Petitioner requested the Commission to hear oral argument of the issues presented.

1–F. *Decision of the Commission—Application for Rehearing—Final Order.* On the 19th day of April 1962 the Commission issued its decision, entitled "Opinion No. 356—Opinion and Order upon a Declaration of Intention". In that document the Commission expressed its findings and conclusions. The Order of the Commission is set out at the end of the document. A copy of the entire document is herewith submitted as "Appendix B."

Within the time prescribed by the governing statute—Section 313(a) of the Federal Power Act (16 U.S.C. § 825L(a))—and by the rules of the Commission, Petitioner duly filed and submitted to the Commission its Application for Rehearing.

On the 20th day of June 1962 the Commission issued its order denying said Application for rehearing; whereupon its aforementioned Opinion and Order of April 19, 1962 became final and reviewable in accordance with the provisions of Section 313 (b) of the Federal Power Act (16 U.S.C. § 825L(b)).

1–G. *The Commission's Findings and Conclusions.* Adopting the findings and conclusions of the Examiner, the Commission found and concluded:

(i) That the East Fork of the Black River (on which the proposed project was to be constructed) was not navigable;

[9] (ii) That the Black River was navigable from the mouth of the East Fork (which is four miles below the lower extremity of the project) to the mouth of the Black River in Arkansas, where it flowed into the White River;

(The finding that that portion of the Black River was "navigable" was expressed generally—without qualification as to the kind of navigability established by the evidence, which was very limited.)

(iii) That the proposed project on the non-navigable East Fork would have an effect on the navigability of the Black River which—in the language of the Examiner's findings—"would vary from a de minimis effect to a substantial effect" and that the proposed project "will be capable of affecting, and will affect the navigable capacity of the Black River downstream from its confluence with the East Fork";

(iv) That the proposed project—in the language of the Commission's Opinion purporting to state the effect of the Examiner's findings (which it adopted)—"would have an inevitable effect upon the navigability of the Black River during periods of extreme flows and that it created a capability to affect radically the navigable capacity of the Black River at any time"; and

(v) That the proposed project would, therefore, affect "the interests of interstate or foreign commerce."

The Commission, in its Opinion, ruled also upon a contention made by the Staff which the Examiner had found it unnecessary to decide. The substance of that contention was that, even if the project would have no effect upon the Black River as a highway of interstate commerce, construction of ~~the~~ project upon the non-navigable tributary of that stream was, nevertheless, not permissible—under Section 23(b) of the Federal Power Act (16 U.S.C. § 817)—without a license issued under that Act. That contention was sustained by the Commission.

The factual ground of the Commission's holding in that respect was that electricity to be generated at the pro-[10] posed plant would be transmitted (by an over-land transmission line not touching or affecting any of the streams involved) to a point at which the line would be interconnected with other facilities of Petitioner by which it transmitted electricity to areas in Illinois and Iowa, as well as in Missouri.

In view of those facts the Commission held that the interests of interstate commerce would be affected by the "proposed construction" of the Taum Sauk Plant—within the meaning of Section 23(b) of Part I of the Federal Power Act (16 U.S.C., § 817).

1–H. *The Commission's Order.* The following Order was entered by the Commission on April 19, 1962, and set out at the end of its Opinion:

*"The Commission orders:*

"(A) The request for oral argument is hereby denied.

"(B) Union Electric Company is required to obtain a license for its proposed Taum Sauk Project works, pursuant to the provisions of the Federal Power Act."

2. *The Facts Upon Which Venue Is Based.*

2–A. *The Statute.* Under Section 313(b), Part III, of the Federal Power Act (16 U.S.C., § 825L(b)) a party aggrieved by an order issued by the Commission in a proceeding under the Act (including Parts I, II and III thereof) may obtain review of such order in the United States Court of Appeals for any circuit "wherein the licensee or public utility to which the order relates is located or has its principal place of business * * * by filing in such court, within sixty days after the order of the Commission upon the application for rehearing, a written petition praying that the order of the Commission be modified or set aside in whole or in part."

The term "public utility" is defined in Section 201(e), Part II of the Act, as follows:

> "(e) The term 'public utility' when used in this Part (Sections 201–209, 16 U.S.C., §§ 824–824h) or in [11] the Part next following (Sections 301–320, 16 U.S.C., §§ 825–825r) means any person who owns or operates facilities subject to the jurisdiction of the Commission under this Part (Sections 201–209, 16 U.S.C., §§ 824–824h)." [Parenthetical matter supplied.]

Facilities "subject to the jurisdiction of the Commission" under Part II of the Act (Sections 201–209, 16 U.S.C., §§ 824–824h) are all facilities for transmission of electric energy in interstate commerce *or* for sale of electric energy at wholesale in interstate commerce. (See Section 201(b), 16 U.S.C., § 824(b).)

2–B. *The Facts.* Petitioner, Union Electric Company, is a corporation organized and existing under the law of Missouri, with its principal place of business in the City of St. Louis, Missouri—all as shown by the record in the proceeding below.

Petitioner is engaged, as authorized by its corporate charter, in generating, transmitting, distributing and selling electricity—both at wholesale and at retail—in parts of the States of Missouri, Illinois and Iowa. In the course of that business it owns and operates facilities, including transmission lines, by which it transmits electric energy in interstate commerce from the State of Missouri to areas in the States of Illinois and Iowa and from areas in the States of Illinois and Iowa to the State of Missouri. All of such facilities are subject to the jurisdiction of the Commission under Part II of the Federal Power Act (Sections 201–209, 16 U.S.C., §§ 824–824h); and the transmission line to be constructed from the power plant of the Taum Sauk project and interconnected with the aforementioned interstate transmission facilities of Petitioner, as shown by the record herein, will constitute a part of such facilities. Petitioner is, therefore, a "public utility" within the meaning of that term as used in Parts II and III of the Federal Power Act.

The order of the Commission denying Petitioner's Application for Rehearing was issued on June 20, 1962. This Petition is being filed in this Court within sixty days after that date.

[12] 3. *The Grounds on Which Relief Is Sought.*

3–A. *The Commission's Order* (quoted in paragraph 1–H of this Petition), constituting a determination in the nature of an adjudication that "Union Electric Company is required to obtain a license for its proposed Taum Sauk Project works, pursuant to the provisions of the Federal Power Act," was and is beyond the jurisdiction of the Commission and should be quashed or set aside by this Court, for the following reasons:

(i) Section 23(b) of the Federal Power Act (16 U.S.C., § 817), which governs the proceeding in which the Order was entered and defines the power and authority of the Commission in such a proceeding, neither authorizes nor permits the Commission to make or issue such an order. As shown by the Section referred to, the only power of the Commission in such a proceeding is to make a *finding,* after investigation, as to whether or not "the interests of interstate or foreign commerce would be affected" by the proposed construction described in the declaration of intention relating to such construction.

(ii) The question of whether or not Petitioner is required, under the provisions of the Federal Power Act, to obtain a license for the proposed project works is judicially determinable either (1) in a suit by the Commission in a District Court of the United States pursuant to the provisions of Section 314a of the Federal Power Act (16 U.S.C., § 825m) or (2) in a suit by Petitioner in a District Court of the United States to enjoin any threatened interference by the Commission with its construction of the proposed project.

(iii) Although the Commission's said Order is void because beyond its jurisdiction, it should be so declared and should be set aside by this Court, since it stands on the Commission's records and in published reports of Commission proceedings as an apparent determination of rights and duties of Petitioner (with respect to the proposed project) which can be validly determined only in a judicial proceeding.

[13] 3–B. *The Commission's Findings and Conclusions,* incorporated in its Opinion No. 356 (referred to in paragraphs 1–F and 1–G of this Petition) and in the Initial Decision of the Examiner (referred to in paragraph 1–E of this Petition) which the Commission adopted, were and are erroneous in the respects herein below specified, and should be set aside by this Court for the reasons herein below stated, namely:

(i) The Commission's Finding and Conclusion that the Black River was "navigable" from the point of confluence with the East Fork—without qualification as to the kind and extent of such navigability shown by the evidence—is inaccurate and misleading. The evidence showed a limited capacity of the river for navigation in commerce. The only evidence of such navigation was that showing that railroad ties had been floated down the river and that "the head of navigation for floating ties and timber" was at or near the mouth of the East Fork. But the Commission applied its finding of navigability (in determining the question of whether the proposed project would affect the navigability of the stream) without any expressed consideration of the extent of the river's navigable capacity and, apparently, without any actual consideration of the limitations upon such capacity. The unqualified finding that the river was "navigable", as thus applied by the Commission in its Opinion, was and is erroneous and unsupported by any substantial evidence.

(ii) The Commission's Finding and Conclusion that the proposed project on the non-navigable East Fork would have an effect on the navigability of the Black River which—in the language of the Examiner's findings (adopted by the Commission)—"would vary from a de minimis effect to a substantial effect" and that the proposed project "will be capable of affecting, and will affect the navigable capacity of the Black River downstream from its confluence with the East Fork" were ~~and are erroneous~~ and unsupported by any substantial evidence.

(iii) The Commission's Finding and Conclusion that the proposed project—in the language of the Commis-[14]sion's Opinion purporting to state the effect of the Examiner's finding (which it adopted)—"would have an inevitable effect upon the navigability of the Black River during periods of extreme flows and that it created a capacity to affect radically the navigable capacity of the Black River at any time" were and are erroneous and unsupported by any substantial evidence.

(iv) The Finding and Conclusion of the Commission—stated in its Opinion and in the Initial Decision of the Examiner which it adopted—that "the interests of interstate or foreign commerce would be affected" by the proposed construction described in Petitioner's Declaration of Intention—because of the effect of such proposed construction upon the navigability or navigable capacity of the Black River—were and are erroneous, unsupported by any substantial evidence, and unwarranted in fact and in law.

(v) The Finding and Conclusion of the Commission—stated in its Opinion and in the Initial Decision of the Examiner which it adopted—that "the interests of interstate or foreign commerce would be affected" because the Taum Sauk project would be "constructed, operated and maintained for the development of power to supply markets not only in Missouri but also in the State of Illinois", were and are erroneous, unsupported by any substantial evidence, and unwarranted in fact and in law.

(vi) The Finding and Conclusion by the Commission, as stated in its Opinion, that even if the proposed project would have no effect upon the Black River as a highway of interstate commerce, it would, nevertheless, affect the "interests of interstate commerce" within the meaning of those terms as used in Section 23(b) of the Federal Power Act (16 U.S.C., § 817)—and that construction of the proposed project was, therefore, not permissible without a Federal Power

Commission license—was and is erroneous, without warrant in law and inconsistent with the governing judicial decisions relating to Section 23(b) of the Act, as well as with the construction of Section 23(b) which had been followed by the Commission itself for [15] many years prior to the issuance of its Opinion and Order in the proceeding to which this Petition for Review relates.

(vii) The Conclusion of the Commission, as expressed in its Opinion, to the effect that the jurisdiction of Congress over non-navigable tributaries of navigable streams is not limited to matters or measures relating to the protection, preservation, improvement or use of such navigable streams as highways of interstate commerce—which Conclusion was treated by the Commission as pertinent to its construction of Section 23(b) (16 U.S.C., § 817) of the Act—is erroneous, inconsistent with the provisions of the Federal Power Act, including Section 23(b) of Part I thereof, and otherwise without warrant in law.

4. *The Relief Prayed.*

Wherefore, Petitioner, presenting this Petition pursuant to the provisions of Section 313 (b) (16 U.S.C. § 825L(b)) of the Federal Power Act, prays relief as follows:

A. That a copy or copies of this Petition (herewith filed) be transmitted to a member or members of the Federal Power Commission by the Clerk of this Court in accordance with the directions in Section 313(b) (16 U.S.C., § 825L(b)) of the Federal Power Act, and that the Court make such order or orders as may be necessary or proper to the end that the record upon which the Order here complained of was entered—or so much of that record as may be found necessary for the review herein sought—be filed by the Commission with this Court;

B. That the Order herein complained of—that is the Order quoted in paragraph 1–H of this Petition, a copy of which is herewith submitted as part of Appendix B—be reviewed by this Court, with the Opinion of the Commission referred to in paragraph 1-F hereof (a copy of which is attached hereto as a part of Appendix B), and that said Order be set aside by decree of this Court on the ground that the Order, in nature and subject matter, was and is beyond the jurisdiction of the Commission.

[16] C. In the alternative (if the Court should determine that said Order, in nature and subject matter, was and is within the jurisdiction of the Commission) that said Order, and the Findings and Conclusions of the Commission upon which said Order was based, be reviewed by the Court with reference to each and all of the grounds upon which relief is sought by Petitioner (as stated in this Petition under the caption "3. Grounds on which Relief Is Sought") and that said Order and said Findings and Conclusions be set aside by decree of this Court.

And Petitioner prays such other and further relief in the premises as may be equitable and proper.

Robert J. Keefe,
Robert G. McClintock,
*314 North Broadway, St. Louis 2, Missouri,*
*GArfield 1-0845,*
Charles J. Dougherty,
Duane A. Patterson,
*315 North Twelfth Boulevard, St. Louis 66, Missouri,*
*Attorneys for Petitioner Union Electric Company.*

*Clerk's Note re Appendices A and B*

Appendices A and B, attached to Petition for Review, being Initial Decision of Presiding Examiner printed, *infra*, p. 85, and Opinion and Order of Commission, printed, *infra*, p. 151.

## Before the Federal Power Commission

## Exhibit 1.

## Declaration of Intention

## *In the Matter of Union Electric Company*

Union Electric Company (hereinafter referred to as "Declarant"), pursuant to Section 23(b) of the Federal Power Act, hereby declares to the Federal Power Commission its intention to construct, operate and maintain [17] a pumped-storage electric generating station as described herein.

Declarant is a corporation duly organized and existing under and by virtue of the laws of the State of Missouri, with its principal executive office at 315 North Twelfth Boulevard, St. Louis 1, Missouri, and is engaged, as a public utility subject to the jursidiction of the Public Service Commission of the State of Missouri, in rendering electric service in eastern and central Missouri and steam heating service in a limited portion of downtown St. Louis. It is also engaged in rendering electric service in portions of Illinois and gas service in Alton, Illinois, and vicinity, as a public utility under the jurisdiction of the Illinois Commerce Commission, as well as electric service in southeastern Iowa.

Communications in regard to this Declaration of Intention should be addressed to: E. J. Shapiro, Secretary of Declarant, whose address is 315 North Twelfth Boulevard, St. Louis 1, Missouri.

In compliance with Part 24, *Regulations Under the Federal Power Act*, Declarant respectfully represents and states:

Declarant proposes to construct, operate and maintain a high head, pumped-storage electric generating station to be known as its Taum Sauk Plant. Said plant will be located on and near the East Fork of the Black River in Township 33 North, Range 2 East, Reynolds County, Missouri, all as more specifically shown on Location Map, Taum Sauk Project, Exhibit "A", attached hereto.

Although all designs are not yet final, Declarant proposes to erect a concrete dam approximately 60 feet high above its foundations and approximately 350 feet long, with a free crest at elevation 750.0 feet above mean sea level, U.S.G.S. datum, and with a flood discharge capacity over the free crest in excess of 70,000 cubic feet per second. The dam will be located across the East Fork of the Black River on a site approximately 292 river miles above the mouth of the Black River and just below the confluence with Taum Sauk Creek. The dam will create a pool (hereinafter referred to as "lower pool") with [18] a total surface area of approximately 370 acres in the East Fork of the Black River and Taum Sauk Creek. The dam will impound approximately 6,000 acre feet of water of which approximately 4,000 acre feet, lying between 735 and 750 feet above mean sea level, will be used in the operation of the plant.

The lower pool will serve as a suction pool for a high head, energy storage reservoir (hereinafter called upper pool) to be constructed on top of an adjoining mountain by the erection of a rock fill, concrete faced dike, approximately 110 feet high, surrounding a surface area of approximately 32 acres. The upper pool will have no drainage area contributory to it. This pool will have a capacity of approximately 4,000 acre feet, all of which will be available for use in the operation of the plant, the top and maximum water surface to be at elevation 1,625 feet, and the bottom and minimum water surface to be at elevation 1,515 feet above mean sea level. The volume of the upper pool will be such that the plant can generate at rated capability for approximately eight hours.

A pressure tunnel and conduit, approximately 6,400 feet in length and varying in cross section from 270 to 510 square feet will connect the upper pool with a pumping and generating station to be located on an open channel running to the lower pool.

The pumping and generating station will house two reversible pump-turbine units. As shown on Exhibit "C", attached hereto, each unit when generating will have a rated electrical output of 175,000 kilowatts when generating and each will utilize electrical energy at approximately the same rate when pumping. When the upper pool is full, the stored water will be capable of producing approximately 2,750,000 kilowatt hours when passed through the units.

When it is desired to store energy, the units will operate as pumps, drawing water from the lower pool and pumping it to the upper pool; and when it is desired to reclaim the stored energy, i.e. generate, the units will operate as turbines utilizing the force of the water from the upper pool through the aforementioned tunnel and conduit. When pumping, each unit will discharge approximately [19] 2,300 cubic feet per second against to total dynamic head of approximately 811 feet; and when generating, each will discharge approximately 3,500 cubic feet per second under a net head of approximately 750 feet.

The combined natural flows of the East Fork of the Black River and Taum Sauk Creek are insufficient for commercial generation of electric energy and will not be so used. Hence, generation equipment will not be placed in the proposed dam.

The project covered by this Declaration will be located solely on privately owned lands and the transmission line leading therefrom will be located upon private right of way except in those instances where it will be necessary to cross or occupy state and country road or highway rights of way for which Declarant has, or will acquire, consent of appropriate authorities: No state or federal lands or reservations will be occupied or flooded by this project or its transmission facilities (except for occupancy of state and county road or highway rights of way as indicated above). For this reason, the detailed map of the area of this proposed project required by Part 24(b)(2), *Regulations Under the Federal Power Act,* has been omitted.

The East Fork of the Black River rises on the southern slope of a ridge in the St. Francois Range in Iron County, Missouri, at elevation approximately 1,450 feet above mean sea level, approximately one and one-half miles southwest of Graniteville, Missouri. From this point, it flows southwest approximately nine miles to a point in Section 8, Township 33 North, Range 2 East, Reynolds County, Missouri, where it is joined by Imboden Fork at elevation 825 feet above mean sea level. The fall in this reach is at the rate of approximately 80 feet per mile.

For the next two miles, it flows south through a deep gorge, known as Johnson Shut-in, with a total fall of 75 feet to elevation approximately 750 feet above mean sea level. The fall in this reach is at the rate of about 38 feet per mile.

In the next two and one-half miles, flowing south, it is joined by Walker Branch and by Taum Sauk Creek after [20] which it enters another narrow gorge which is the site of the dam which will create the lower pool of the project. At the site of the proposed dam, the stream is at elevation approximately 700 feet above mean sea level, a rate of fall in this reach of approximately 20 feet per mile.

In the area of the lower pool, there are no existing improvements requiring relocation or removal except a primitive county road with two, low water, concrete fords and some electric distribution facilities belonging to Black River Electric Cooperative, Ironton, Missouri. It is proposed to relocate the road to high ground above the lower pool, and there is an agreement by and between Declarant and Black River Electric Cooperative covering the relocation or removal of said distribution facilities.

Below the site of the proposed dam, the East Fork flows south, falling at a rate of about 15 feet per mile, for four miles through a broad, shallow, gravel-bottom stream bed to a point about one mile southeast of Lesterville, Missouri. Here, at elevation 635 feet above mean sea level, it is joined by the combined West and Middle forks to form the main stream of the Black River. At or near this confluence is the "head of navigation for floating ties and timber" as determined by the Corps of Engineers, United States Army, in the studies that preceded the construction of Clearwater Dam as reported to Congress in House of Representatives Document No. 102, 73rd Congress, 1st Session. Above this confluence, the East Fork of the Black River is not used or suitable for use for the transportation of persons or property in intrastate, interstate or foreign commerce. While the main stream of the Black River at Clearwater Dam and below has been improved by the United States, diligent search has failed to disclose that Congress has authorized or received authoritative recommendations for any improvement of the East Fork of the Black River.

The Black River then flows southeast for approximately nine and one-half miles to the head of the Clearwater Dam flood pool, at elevation 567 feet above mean sea level, then twelve miles to the head of the Clearwater Dam conservation pool, at elevation 494 feet above mean sea level, and then seven miles to the dam, the base of which is at elevation 454 feet above mean sea level.

No record of stream flow at the site of the proposed dam is available. The United States Geological Survey maintains a stream gauging station on the Black River near Annapolis, Missouri, records of which are published in Part 7 of the Water Supply Papers of U.S.G.S. This station measures the flow from a drainage area of 484 square miles of the combined three forks of the Black River. The streams above the site of the proposed dam drain an area of 88 square miles. Similarity of the terrain for all of the drainage area above the Annapolis Gauging Station makes it reasonable to assume that the ordinary and natural flows passing the site of the proposed dam are in the same proportion to the flow at the Annapolis Gauging Station as the respective drainage areas. This should be true in all cases except times of intense localized storms when extreme high flows are expected to be relatively higher at the site of the proposed dam because of the steep terrain. The flow duration curve included herewith in Exhibit "B" was derived from the flow duration at the Annapolis Gauging Station on the basis of the ratio of the drainage areas.

Two 138,000 volt transmission circuits, carried approximately thirty miles to the northeast on steel tower or wooden "H" frame structures, will connect the Taum Sauk pumping and generating station with Declarant's Rivermines Substation, a point of junction with Union Electric's interconnected primary trasmission system. Each circuit will be separately connected to one of the pump-turbine units through suitable disconnecting switches, circuit breakers and transformers. As hereinabove stated, no Federal lands or reservations will be occupied or crossed by the privately owned single right of way over which the circuits will be carried.

Declarant intends to operate the project for the purposes of carrying peak loads on its system, providing emergency generating capacity and as otherwise may be appropriate in the operation of its system. Declarant intends to main-[22]

tain, as a normal condition, a full upper pool and a minimum level in the lower pool except when the plant is pumping or generating. Water that is transferred from the upper pool to the lower pool during a period of generation will be returned to the upper pool during a later period to restore the normal condition of the full upper pool. For the pumping process, Declarant will use electric capacity available to it from its own and interconnected systems. No operation other than the above described daily cycle is contemplated.

Flows in excess of the minimum at the site of the proposed dam will be sufficient to accumulate in the lower pool the initial charge of 6,000 acre feet in a period of about 60 to 90 days. Following the 60 to 90 day period, the outflow through the dam will be regulated to correspond to the inflow to the lower pool from the feeding streams. To accomplish this regulation, appropriate gauging stations will be established and sluice gates will be installed in the dam capable of discharging up to 2,000 cubic feet per second. It is estimated that sluice gates of said capability will be sufficient to pass the inflow more than 99% of the time. Regulation of the flows through the dam to correspond with the flows into the lower pool, as described above, is necessary to the efficient operation of the project because efficient operation is predicated upon the maintenance of maximum differences in elevation between the water surface levels in the upper and lower pools. Therefore, it is essential that after the initial charge of 6,000 acre feet has been secured none of the flow of the streams feeding the lower pool be retained.

Because the volume of water passed through the dam will be equal to the volume that flows into the lower pool, operation of the proposed Taum Sauk Plant will not, to any measurable degree, affect the operation and maintenance of Clearwater Dam as a flood control and conservation project. Because of the rapid fluctuation of the two pools in the proposed project, it is not anticipated that there will be any development of the site for recreational purposes.

Under the conditions set forth above the rule of operation for the project is a daily one and there is no intent [23] to establish or operate on a weekly, seasonal or annual cycle. A statement of an annual rule of operation as required by Part 24(c)(3), *Regulations Under the Federal Power Act*, is not appropriate. Further, once the initial charge of 6,000 acre feet is secured, there will be no further storage or pondage and a statement of utilization based upon seasonal, weekly or daily variations in the flow or upon growth of Declarant's load, as required by Part 24(c)(1), *Regulations Under the Federal Power Act* is not appropriate.

The following exhibits are filed herewith and are hereby made a part of this Declaration of Intention:

- Exhibit A Location Map, Taum Sauk Project
- Exhibit B Profile of the East Fork of the Black River and the Black River
  - Flow Duration Curve, Natural and Regulated Flow at Dam Site
  - Average Monthly Flow, Lowest Water Year of Record, Natural and Regulated Flow at Dam Site
  - Ten Day Period Approximating Average Recorded Yearly Flow, Natural and Regulated Flow at Dam Site
  - Ten Day Period of Lowest Recorded Flow of Record, Natural and Regulated Flow at Dam Site
- Exhibit C Load Curve for Peak Week of 1964
  - Volume Curve, Upper Pool
  - Volume Curve, Lower Pool
  - Generator Output Versus Turbine Discharge

Wherefore, Declarant prays that the Federal Power Commission cause an immediate investigation to be made of the proposed project, and following such investigation, that the Federal Power Commission by order find that the interests of interstate or foreign commerce would not be affected and that public lands or reservations would not be affected by the construction and operation of the proposed project.

In Witness Whereof, Declarant has caused its name to be hereunder signed by J. W. McAfee, its President, and [24] its corporate seal to be thereto affixed by E. J. Shapiro, its

Secretary, thereunto duly authorized, this 29th day of January, 1960.

UNION ELECTRIC COMPANY,
(SEAL.) By J. W. MCAFEE, *President.*

---

(Exhibits 2–A, 2–B, 2–C, 3–A, 3–C, 3–D, 3–E and 3–G reproduced in Volume of Exhibits.)

(Exhibit 3–B was amended and supplanted by Exhibit 14 appearing in Volume of Exhibits.)

(Exhibit 3–F is duplicated by Exhibit 9–F contained in Volume of Exhibits.)

Duly sworn to by J. W. McAfee jurat omitted in printing (all in italics).

[25] *Notice of Declaration of Intention—February 19, 1960*

### Before the Federal Power Commission

*Union Electric Company. Docket No. E–6927*

Public notice is hereby given that Union Electric Company (Declarant), of St. Louis, Missouri, has filed a declaration of intention pursuant to Section 23(b) of the Federal Power Act (16 U.S.C. 817) to construct a hydroelectric project (Docket No. E–6927), to be known as the Taum Sauk Project and to be located on the East Fork of the Black River at its confluence with Taum Sauk Creek, in Reynolds County, Missouri. The proposed project will be a high-head pumped storage hydroelectric project and will consist of: a concrete gravity dam approximately 60 feet high above its foundations and approximately 450 feet long, including 350 feet of overflow spillway with free crest at elevation 750 feet above mean sea level, U.S.G.S. datum, creating the "lower pool" with a total surface area of approximately 370 acres in the East Fork of the Black River and Taum Sauk Creek; the water impounded in the lower pool (consisting of approximately 6,000 acre-feet of which approximately 4,000 acre-feet would lie between elevations 735 and 750) being pumped against a dynamic head of approximately 811 feet into an energy storage reservoir designated the "upper pool"; the upper pool, to be constructed on top of an adjoining mountain, to have a surface area of approximately 32 acres and to impound approximately 4,000 acre-feet between elevations 1515 and 1625 within a rock-fill concrete-faced dike approximately 110 feet high; a 6,400-foot-long pressure tunnel and conduit, connecting the upper pool with a pumping and generating station on an open channel to the lower pool; two reversible units to pump water at night to the upper pool and to serve as generators during the day, each unit when generating to have a rated capacity of 175,000 kilowatts; two 138,000 volt transmission lines connecting the proposed installation with the Union Electric Company system.

[26] According to the application, the proposed project will be operated for the purpose of carrying peak loads on Declarant's system, for providing emergency generating capacity, and as otherwise appropriate to the operation of its system.

The Commission will investigate the proposed construction and determine whether a license under the Federal Power Act is required or whether the project may be constructed merely upon compliance with State laws. Any communication from persons interested in this matter may be submitted on or before April 4, 1960, to the Federal Power Commission, Washington 25, D.C. The declaration of intention is on file with the Commission for public inspection.

Joseph H. Gutride, *Secretary.*

---

## Before the Federal Power Commission

*Order Fixing Hearing—Issued December 30, 1960*

Before Commissioners: Jerome K. Kuykendall, *Chairman;* Frederick Stueck, Arthur Kline and Paul A. Sweeney.

[Title omitted.]

Union Electric Company of Saint Louis, Missouri (Company), on February 1, 1960, filed with the Federal Power Commission a declaration of intention pursuant to Section 23(b) of the Federal Power Act (16 U.S.C., § 817), in which Union Electric Company announced its proposal to construct, operate and maintain a pumped-storage hydroelectric generating project on the East Fork of the Black River in Reynolds County, Missouri, and in which Union Electric Company prayed that the Federal Power Commission, following an investigation, find that the interests of interstate or foreign commerce would not be affected and that public lands or reservation would not be affected.

[27] The Commission's staff (staff) has made an investigation of the proposed project and the staff has concluded that the construction, operation and maintenance of the proposed project would affect the interests of interstate or foreign commerce. The Company has requested a hearing.

*The Commission finds:*

It is appropriate and in the public interest to hold a public hearing as hereinafter provided respecting the matters involved and the issues presented by the aforesaid declaration of intention.

*The Commission orders:*

Pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by the Federal Power Act, particularly Section 4(e), 23(b), 307 and 308 thereof, and the Commission's Rules of Practice and Procedure, a public hearing shall be held on January 31, 1961 at 10:00 a.m. (EST) in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D.C., respecting the question of whether the construction, operation, and maintenance of the proposed project by Union Electric Company would be subject to the licensing provisions of the Federal Power Act.

By the Commission.

MICHAEL J. FARRELL, *Acting Secretary.*

---

Before the Federal Power Commission

*Designation of Presiding Examiner January 24, 1961*

[Title omitted.]

The Commission, by order issued December 30, 1960, as amended by order issued .........., having ordered that a public hearing be held in the above-entitled matter, to convene at 10:00 o'clock a.m., on Jan-[28]uary 31, 1961, and the Chairman of this Commission having, on September 18, 1953, delegated to the Chief Examiner the power and authority to assign Hearing Examiners to cases in accordance with the Provisions of Section 11 of the Administrative Procedure Act, Hearing Examiner Samuel Binder is hereby designated to preside at the said hearing.

Done at Washington, D.C., this 24th day of January 1961.

**Edward B. Marsh**, *Chief Examiner.*

---

Before the Federal Power Commission

*In the Matter of: Union Electric Company. Docket No. E–6927*

Hearing Room H, Federal Power Commission, 441 G Street, Northwest, Washington, D.C.

*Transcript of Hearing Before Presiding Examiner—January 31, 1961*

The above-entitled matter came on for hearing, pursuant to notice, at 10:10 o'clock a.m.

Before: **Samuel Binder**, *Presiding Examiner.*

*Appearances*

Duane Allen Patterson, 315 North Twelfth Boulevard, St. Louis 1, Missouri, appearing on behalf of Union Electric Company. Joseph B. Hobbs, appearing on behalf of the Staff of the Federal Power Commission.

Staff Counsel's Technical Aides and Consultants: Joseph J. A. Jessel, Ralph E. Coomes, Thomas M. Crum.

[29] *Statement of Presiding Examiner*

Presiding Examiner: The hearing in the matter of Union Electric Company, Docket No. E–6927 will please come to order.

This is a public hearing before the Federal Power Commission on a Declaration of Intention filed by Union Electric Company pursuant to Section 23(b) of the Federal Power Act in which Union Electric Company announced its proposal to construct, operate and maintain a pumped-storage hydroelectric generating project on the East Fork of the Black River in Reynolds County, Missouri, and in which Union Electric Company prayed that the Federal Power Commission, following an investigation, find that the interests of interstate or foreign commerce would not be affected and that public lands or reservations would not be affected.

The Commission's staff has made an investigation of the proposed project and the staff has concluded that the construction, operation and maintenance of the proposed project would affect the interests of interstate or foreign commerce. The Company has requested a hearing.

The Commission issued an order fixing a hearing on December 30, 1961, and provided that such hearing shall be held at this time and place.

The Commission's order provides that a hearing would be held respecting the question of whether the construction, operation and maintenance of the proposed project by Union Electric Company would be subject to the licensing provisions of the Federal Power Act.

The Examiner has received a memorandum from the Acting Records Officer of the Commission dated January 12, 1961, relating to the notice published in the Federal Register regarding this proceeding. The reporter is requested to insert in the transcript at this point a copy of the memorandum received from the Acting Records Officer.

"Federal Power Commission, January 12, 1961.

"In the Matter of: Union Electric Co., Docket No. E-6927.

"Memorandum for the Presiding Officer:

"The records in the Office of Administration show that notice of the hearing scheduled to commence on January [30] 31, 1961, in the above-entitled matter was published in the Federal Register on 1/7/61; 26 FR; P-137 and issued Dec. 30, 1960, to the parties and interested persons of record and to States or other governmental authorities deemed to have an official interest in the proceeding.

"Signed: Edward P. Sefcik, Acting Records Officer."

Presiding Examiner: The hearing is held before Samuel Binder, one of the Commission's hearing examiners duly designated to preside. So far as the Examiner is aware no one has filed a petition to intervene in this proceeding.

I have received a copy of a Notice of Declaration of Intent dated February 19, 1960, a copy of which I hand the reporter and ask that he incorporate in the transcript at this point.

(The Notice of Declaration of Intention referred to follows:)

"Public notice is hereby given that Union Electric Company (Declarant), of St. Louis, Missouri, has filed a declaration of intention pursuant to Section 23(b) of the Federal Power Act (16 U.S.C. 817) to construct a hydroelectric project (Docket No. E-6927), to be known as the Taum Sauk Project and to be located on the East Fork of the Black River at its confluence with Taum Sauk Creek, in Reynolds County, Missouri. The proposed project will be a high-head pumped storage hydroelectric project and will consist of: a concrete gravity dam approximately 60 feet high above its foundations and approximately 450 feet long, including 350 of feet of overflow spillway with free crest at elevation 750 feet above mean sea level, U.S.G.S. datum, creating the 'lower pool' with a total surface area of approximately 370 acres in the East Fork of the Black River and Taum Sauk Creek; the water impounded in the lower pool (consisting of approximately 6000 acre-feet of which approximately 4000 acre-feet would lie between elevations 735 and 750) being pumped against a dynamic head of approximately 811 feet into an energy storage reservoir designated the 'upper pool'; the upper pool, to be constructed on top of an adjoining mountain, to have a surface area of approximately 32 acres, and to impound approximately 4008 acre-feet between elevations 1515 and 1625 within a rock-fill concrete-faced dike ap-[31]proximately 110 feet high; a 6400 foot-long pressure tunnel and conduit, connecting the upper pool with a pumping and generating station on an open channel to the lower pool; two reversible units to pump water at night to the upper pool and to serve as generators during the day, each unit when generating to have a rated capacity of 175,000 kilowatts; two 138,000 volt transmission lines connecting the proposed installation with the Union Electric Company system.

"According to the application, the proposed project will be operated for the purpose of carrying peak loads on Declarant's system, for providing emergency generating capacity, and as otherwise appropriate to the operation of its system.

"The Commission will investigate the proposed construction and determine whether a license under the Federal Power Act is required or whether the project may be constructed merely upon compliance with State laws. Any communication from persons interested in this matter may be submitted on or before April 4, 1960, to the Federal Power Commission, Washington 25, D.C. The declaration of intention is on file with the Commission for public inspection."

Signed: "Joseph H. Gutride, Secretary."

I have also received in the file which has been handed to me a copy of a letter addressed to the Secretary of the Commission by Mr. Duane A. Patterson, Legal Assistant to the General Attorney of Union Electric Company, to which was appended a Stipulation of Facts executed on behalf of Union Electric and on behalf of the Staff, together with other evidentiary materials.

As I understand the situation, the parties to this proceeding propose to present in evidence, in addition to the Stipulation of Facts, certain specified evidentiary material.

The Stipulation of Facts appears to reflect the views of the parties to this proceeding that there are no unresolved factual matters but only unresolved and disputed questions of law.

It also appears that the parties believe that this matter could be disposed of more quickly and the record shortened by the execution of the Stipulation of Facts to which I have referred. [32] In these circumstances, before the taking of evidence, I would appreciate a short statement by Union Electric Company as to the general character of the proceeding insofar as the facts are concerned and a short summary of his position on the law. Following that I would appreciate a similar statement to be made on behalf of Staff Counsel. When these statements are concluded, we will then turn to the receipt in evidence of the evidentiary materials which the parties desire to be received.

Mr. Patterson: May it please the Commission, as the Presiding Examiner mentioned, we are here this morning to present to the Presiding Examiner a Stipulation and Evidentiary materials upon which we feel, and I speak, I believe, both for the Union Electric Company and Commission Staff Counsel, the jurisdictional question can be resolved. It is the position of Union Electric Company that the project described in both stipulation and the evidentiary materials incorporated therein will not affect the interest of interstate or foreign commerce as that phrase used in the Federal Power Act nor will it affect public lands or reservations as that phrase used in the Federal Power Act.

We are dealing with a very small, as far as physical structure, pump storage electric generating station to be located in South Central Missouri, on a flashy non-navigable mountain stream the East Fork of the Black River.

Quickly, one might say that this project is analogous to a large storage battery.

We propose, through the use of this project, to store electric energy generated at high efficiency, steam generating stations during off-peak hours which will later be used by Union Electric Company in providing electric service during peak hours or at other times when it may be needed, for emergency purposes, for example.

The plant is operated by energy generated at plants near St. Louis and transmitted to Southern Missouri. And that energy is used to drive reversible pump turbines which pump water out of a small lower pool up to the top of a mountain, to a smaller upper pool. That water pumped to the top of the mountain then remains there idle until such time as it is released and allowed to flow [33] through the reversible pump turbines operating as turbines generating electricity.

The lower pool is created by a dam, a small dam, approximately 60 feet high, 350 feet long, across the East Fork of the Black River, immediately below the confluence of Taum Sauk Creek, which is an intermittent tributary of the East Fork of the Black River.

This small pool will have a surface area of about 395 acres, will have a volume of about 6350 acre-feet of which about 4350 acre-feet will be used in the operation of the project.

Constructed within the dam that will impound this small lower pool will be large controllable sluiceways, which after the initial impoundage has been completed will pass downstream through the dam all of the water that flows into this lower pool from the two feeding streams above this pool. In that regard the watershed, the stream flow, et cetera, below the dam, will be unaffected.

The East Fork of the Black River itself, as I mentioned, is a flashy non-navigable mountain stream. It is a tributary to the Black River which in turn is a tributary to the White River, which is in turn tributary to the Mississippi River.

The flow in this stream is very, very meager. There are times of record when the flow in the East Fork of the Black River has been less than one cubic foot per second. It is a very, very small flow.

A flow duration curve included among the evidentiary material to be submitted this morning shows that the flow in this stream is less than 50 cubic feet per second 50 percent of the time and greater than 50 cubic feet per second 50 percent of the time. It also shows that the flow in this stream is less than 2000 cubic feet per second, better than 99½ percent of the time.

It is similarly shown by the stipulation that there have been just a few occasions when we have had monumental flows in this little stream, when we get in the area of 7- and 8000 cubic feet per second. The sluiceways I referred to before will be capable of passing downstream into the waters below all of the flow coming in the lower pool from the streams above better be 99½ percent of the time. We are dealing with a very, very small fractional percentage, something that might possibly occur once every [34] three years or something of that nature when we might get a flow in excess of the capability of these sluiceways.

On the question of the jurisdiction of the Commission, we have generally felt that the jurisdiction of the Commission was based upon one of three jurisdictional factors as far as the project is concerned.

One, the occupancy of navigable waters which must be eliminated from this problem. There is absolutely no showing of, nor is it possible to show by the Stipulation, or anything else, that the stream that this project will occupy is a navigable waterway. It is simply not capable by improvements or anything else for transporting commerce in interstate or intrastate or foreign commerce.

The second possibility of jurisdiction of this Commission is the showing of an adverse or materially appreciable effect on the navigable capacity of downstream navigable waters. Union Electric Company believes that the construction, operation and maintenance of the proposed Taum Sauk Project will have no effect upon the navigable capacity of these downstream navigable waters.

Let me drop back here, if I may, and say that the Stipulation includes evidentiary factors that would lead one to the conclusion that the Black River of which the East Fork of the Black River is a tributary may be navigable waters of the United States. The East Fork of the Black River below the dam of the proposed project flows somewhat over four miles down below Lesterville, Missouri, to the main stream of the Black River. It was at approximately this point this confluence of the East Fork of the Black River and the main stream of the Black River that the Corps of Engineers determined the head of navigation for floating ties and timbers.

There are references in the stipulation to the possibility of some log flows on the Black River on the two forks other than the East Fork above this confluence. And down below this confluence several miles we have Clearwater flood control project operated by the Corps of Engineers.

In speaking of the possibility of downstream effects upon navigable capacity of navigable waters, we are speaking of the possibility of effect upon the Black River down below the confluence of the East Fork of the Black River with the main stream, on the possibility that it may be navigable. We will not concede that it is a navigable water [35] way, that is a possibility. It may be and it is a question of effect upon the water.

As I say, we do not feel we will effect them at all.

Following with that argument, if it should be found that in the broadest sense, in the broadest use of or definition of the term "effect" that we do change the flow or the stage of these allegedly navigable waters, then we feel that the effect we will have is not sufficient to cause the jurisdiction of this Commission to attach.

**Presiding Examiner.** May I interrupt you?

**Mr. Patterson.** You certainly may.

**Presiding Examiner.** On this problem of navigability of Black River in point of confluence, is there any agreement on the fact of navigability? I gather from your statement so far that there is no stipulation between your company and the Staff as to the navigability of the Black River at the peak of the point; is that right?

**Mr. Patterson.** That is true.

**Presiding Examiner.** Is this a material factor to be determined in the case?

**Mr. Patterson.** It is.

**Presiding Examiner.** So you have a fact not stipulated upon which evidence will be required?

**Mr. Patterson.** I don't feel that is true. I believe there is in the record sufficient factual material from which the legal conclusion of navigability, or non-navigability can be drawn.

**Presiding Examiner.** All right.

**Mr. Patterson.** As I said, we feel no effect and, secondly, in the broadest use——

**Presiding Examiner.** Your view there is no material effect?

**Mr. Patterson.** Not substantial or adverse or appreciable or any of the standards that the Commission has ever applied in any of the cases.

**Presiding Examiner.** Such effect appears to be negligible.

[36] **Mr. Patterson.** Very definitely. For many reasons. For the amount, the probability of the occurrence, the time duration of it, the fact that if we do anything at all, it would not be adverse, but would be beneficial to this stream. And other elements can be discussed in brief and drawn from the facts that are presented.

**Presiding Examiner.** I appreciate you can't write a brief at the opening of a hearing.

Let me ask you this: Will the Examiner be put in the position of attempting to determine whether the navigabilities are of a material character or just merely negligible?

One thing I might want to add. Assuming that it would have an effect of some kind, perhaps negligible, perhaps material, if it has an effect at all on navigable waters, would you not then have to brief the problem of whether the effect is material or not?

Mr. **Patterson**. Yes, sir.

**Presiding Examiner**. Your position would be that you would propose to brief your position later upon the basis that an effect—upon navigable waters, assuming there is effect, arguendo, is not of importance where the effect is not material?

Mr. **Patterson**. That is true. If you assume that the Black River at the confluence and below is navigable water, then it is our position, No. 1; we have no effect and, No. 2, any effect that might be shown is insufficient.

Now, we feel that the Examiner will be called upon to determine as a question of law, from the facts that are presented, whether or not any effect that may be shown is sufficient to cause the jurisdiction of the Commission to attach on the standards that have been set down not only by the Commission in its opinions, but by the Courts in dealing with this problem generally, as a question of law, but not as a question of fact.

**Presiding Examiner**. You may have a question of fact. I don't know. I will determine that after I hear both Counsel. You go ahead.

[37] Mr. **Patterson**. I might say that from our point of view there are two subjects I have just discussed, the non-navigability of the East Fork and effect downstream.

**Presiding Examiner**. Actually, as I followed you—perhaps I have missed something, but you indicated, I believe, that you believe there is presented here a jurisdictional question dependent upon three factors, one of which was the problem of occupancy of navigable waters. The second was dependent upon showing material effect upon downstream navigable waters and you subdivided this into a third.

Mr. **Patterson**. There is a third possibility, but we don't feel it is material here. We may be in conflict with Commission Staff Counsel.

The third criteria is the effect upon public land and reservations. This project and/or its related transmission facilities, will not in any way or manner, occupy, flood, encroach upon, overflow federal lands, public lands or reservations. For that reason we believe there will be no effect upon public land or reservations.

However, I will say at this point within the watershed of the East Fork of the Black River above the dam are 23 square miles of Clark National Forest, a very large national forest, in Southern Central Missouri, we do not feel we will in any way effect these lands.

We are not going to encroach upon them. We feel that although there is a possibility of effect there are no facts to sustain such a conclusion here.

**Presiding Examiner**. That generally outlines your position?

Mr. **Patterson**. Yes, sir.

**Presiding Examiner**. Mr. Hobbs?

### *Statement on Behalf of Federal Power Commission*

Mr. **Hobbs**. I believe Mr. Patterson has described in general the project. I would like to point out that this is a large project and not a small project. I think his opening statement indicated the fact it might be a rather average, maybe even a small project. This is a project with installed capacity of 350 megawatts which is 350,000 kilowatts.

[38] To give the Examiner some relative size of this project, it is about a third larger than the similar type of project involved in Federal Power Commission versus Tuscarora Indian at 362 US 99.

In other words, the pump storage at Niagara Falls, New York is 240 megawatts or 240,000 kilowatts as compared to 350,000 kilowatts of this project. So we do have one of the largest pump storage reservoirs in the country, maybe the largest, as far as I know.

Now, with respect to the stream involved, we are only concerned with the Black River up to its confluence with the East Fork of the Black River. We don't concede that the Black River is not navigable above the East Fork, but that question is not involved here.

On page 11 of the Stipulation we have the statement at the top of the page, "There is documentary evidence showing that the Black River is navigable from the point at the mouth of the East Fork four miles below the site of the proposed dam to the mouth of said Black River."

Perhaps I misunderstand Mr. Patterson——

Presiding Examiner. He did use the word "may."

Mr. Hobbs. The word used in the Stipulation is "is."

Mr. Patterson. Just to eliminate any misunderstanding on the record, in response to your question, sir, you asked if we had stipulated whether the Black River was at this point navigable and I answered, no, as a straight stipulation we had not so stipulated. I did make reference to the evidentiary materials which are referred to on page 11 of the Stipulation and there is evidence tending to show, documentary evidence that the Black River is navigable at this point.

Presiding Examiner. I am sure you were presenting your own view.

Mr. Patterson. We have not so stipulated that it is navigable. We have stipulated that there is documentary evidence tending to show this.

Presiding Examiner. Actually the stipulation goes further than that. It isn't stipulated to the effect that there is documentary evidence tending to show it. The stipula-[39]tion is that there is documentary evidence showing that it is navigable.

Mr. Patterson. Again the facts leading up to navigability can be distinguished from the legal conclusion of navigability.

Mr. Hobbs. I agree with Mr. Patterson that there would be no purpose in stipulating that the Black River is navigable because that is a legal conclusion. This is stipulation of facts from which legal conclusions can be drawn. As near as you can stipulate, I think that sentence factually shows that the

Black River is navigable. Those might be rather fine distinctions on which different people might disagree.

Presiding Examiner. I assume when you and Union Electric entered into the stipulation that you both would be bound by that stipulation. I understand this is stipulation of facts rather than stipulation of law. This sentence reads: "There is documentary evidence showing that the Black River is navigable from a point at the mouth of the East Fork."

I am not aware of any contrary evidence which has been stipulated to regarding the navigability of the Black River.

Mr. Patterson. There is none.

Mr. Hobbs. I don't think there is any serious difference between the two of us for that matter. I didn't want to have a misunderstanding with respect to the factual matter. We can argue the law based on the facts. I think the facts cited here support the conclusion stated in the first sentence. It is certainly our understanding there wouldn't be any argument about the navigability of the Black River.

Now, with respect to the effects on the Black River downstream from the East Fork, we have also stipulated facts with respect to that. On page 16 of the Stipulation, paragraph 3, is one place there. Just above the mouth of the Black River about a half mile in the East Fork we show a fluctuation of 5.7 feet. The reason for that is because the gauge is located at that point and the next gauge is located about 15 miles downstream. The Lester-[40]ville Gauge is located about 3½ miles from the Taum Sauk Plant. When we get downstream to the Annapolis Gauge, shown in Item 5 of the Stipulation, I believe that is about 15 miles downstream. We have various effects shown there. Item 4——

Presiding Examiner. That was the one you were just referring to?

Mr. Hobbs. Items 4 and 5 cover the Annapolis Gauge.

We have an effect shown there. Those effects depend upon the discharge of 6300 cubic feet per second from the Taum Sauk Plant which is the hydraulic capacity of that plant. Since this project will be operated for peaking purposes in the day time and as Mr. Patterson has stated, will be used at night for pumping water back to be used the following day, it will be used as a peaking plant and not as a run-off river plant.

That is one that operates pretty much according to the flow as it comes down the stream. This is a peaking plant.

As I have stated before, if not the largest, it is one of the largest in the United States. It will supply power to the system of Union Electric Company in three states or two states and possibly a third state, which is referred to over here on page 18. The company operates distribution systems in three states, the states of Missouri, Illinois and Iowa. It also sells power for resale in one or more of those states, including the States of Illinois and possibly Missouri.

Presiding Examiner. It says in the Stipulation, the company operates an inter-connected transmission distribution systems in Illinois and Iowa and Missouri.

Mr. Hobbs. That is right. This plant as shown in the last sentence of that paragraph down near the bottom of page 18, electric power will be utilized in Missouri and be transmitted and utilized in Illinois and possibly Iowa. That means that it will be transmitted and utilized in the State of Illinois in the company's distribution systems and to the extent it will be sold in wholesale.

Presiding Examiner. It is clear it is going to be used in two states and we know it is going to be interstate.

[41]. Mr. Hobbs. We have not conducted a field investigation. The company offered to stipulate. We have a problem of getting our workload out of the way. We conducted enough of an investigation to know substantially what the facts were.

Presiding Examiner. The facts are evidently agreed to. One of the things in which there has been shown there as decided interest is the second problem mentioned by Mr. Patterson which related to a showing of material effect on downstream navigable waters.

I may be mistaken, but I gathered an impression from Mr. Patterson's statement that this was a matter which may be in dispute in this proceeding. If you could address yourself to that, Mr. Hobbs, for a few minutes, perhaps it might be helpful.

Mr. Hobbs. If we go back to page 16 of the Stipulation, at the Lesterville Gauge——

Presiding Examiner. You are referring to sub-items 4 and 5 of that page?

Mr. Hobbs. Item 3, 4 and 5.

Presiding Examiner. In this way you were directing my attention to what the Staff considers constitutes a material effect on downstream navigable waters.

Mr. Hobbs. That is right.

Presiding Examiner. I gather that it is your view that the Stipulation indicates particularly at page 16 that the construction of the proposed project would have a material effect on downstream navigable waters.

Is that what your position is?

Mr. Hobbs. Yes.

Factually it varies between 5.7 feet at the Lesterville Gauge which is about a half mile upstream from the confluence of the East Fork of the Black River down to about 3 or 4 feet at the lower section down at Annapolis Gauge.

*Colloquy between presiding examiner and counsel re. offers in evidence*

Presiding Examiner. May I ask you, Mr. Patterson, whether you consider effect such as that described on page 16 to be material?

[42] Mr. Patterson. No, sir.

Union Electric Company believes this plant is so designed and will better than 99½ percent of the time be, and operate as a run of the river plant, as far as the flow and stage of the stream below our project is concerned, because below our dam flowing downstream will be exactly the same amount of water that would have been there but for the existence of this project.

Presiding Examiner. With or without the project the effect would be the same downstream?

Mr. Patterson. No. I am sorry. Perhaps I am not making myself clear, sir.

Presiding Examiner. All right, Mr. Patterson.

Mr. Patterson. If I may, I would like to direct the attention of the Examiner to item 3-A which appears in the set of evidentiary material. This is denominated a plot plan prepared by Sverdrup and Parcel Engineering Company. This is a top view of the proposed project.

On the right hand side we see the small dam across the stream of the East Fork of the Black River, on the far right hand side of the drawing. The larger irregular outline shape two-fingered lower pool is backed up behind this small dam. Now when the dam is closed, this pool, this so-called lower pool will be impounded. As I mentioned before, this pool is a surface area of 395 acres and a volume of 6,350 acre-feet. This is the one and only impoundage of waters behind this dam.

We will build up an initial charge when we first close the dam. We will take out of the lower pool in the operation of the project 4,350 acre-feet of water, and pump it up to the upper pool on top of the mountain. There it will be stored.

We are using again generating capacity from the St. Louis area. When we need the energy so stored it will be released and flow back through the same tunnel and conduit, through the same units that pumped it up and back into this lower pool. This is a peaking plant as far as its purposes are concerned. However, the effect of the operations of this project are limited to the confines of this lower pool. We pump water from the lower pool to the top of the mountain and subsequently release it and it [43] flows back to the lower pool. We will discharge through sluices to be located in the dam an amount of water equal to the amount of water that comes into this lower pool from the two streams that feed it, Taum Sauk Creek, the East Fork of the Black River coming from the left. Back again to the statement I made, as far as the stream below this dam shown at the right hand side of the plot plan on downstream which is further to the right, because of the operation of the project this stream down here will be unaffected.

The water stage and the flow will be exactly the same but for the existence of the project, as though the project was completely lifted out because the flow will be exactly the same. The water goes right on down through.

Presiding Examiner. Let me ask you, when it goes right on down will it not have effect on the Black River and what will that effect be?

Mr. Patterson. We feel that when the flow and the stage is exactly the same as the natural flow and stage, then there is no effect.

Presiding Examiner. What is your position on that, Mr. Hobbs?

Mr. Hobbs. Our position is in order to have water in this lower pool to pump back up in the upper pool, you can't keep it empty to reregulate the flow from the upper pool and when the lower pool is full you are going to have the effects I have just referred to on page 16 of the stipulation.

Presiding Examiner. In other words, it is the Staff's position when this water comes downstream it will have the effect downstream in navigable waters described on page 16, is that what I understand your position to be?

Mr. Hobbs. Would you read that back?

Presiding Examiner. The reporter will read it.

(Statement read.)

Mr. Hobbs. Yes.

Presiding Examiner. Now, absent the construction proposed here, what would be the situation in the downstream [44] waters? Would it be the same without the construction as it is with the construction?

Mr. Hobbs. No. You are adding a slug.

Presiding Examiner. Are you referring to the upper left hand side of the page of the proposed Exhibit 3–A?

Mr. Hobbs. Yes, I am referring to the lower pool. When that pool is full and you are releasing hydraulic capacity which is 6800 cubic feet per second, you are adding that slug of water to cause effects downstream which are described in the stipulation.

Presiding Examiner. The question which I was asking you was whether or not the effects on page 16 would exist in the absence of the construction proposed here? In other words, as I understand Mr. Patterson, he says that in the operation of the navigable stream there is a rising and a lowering of water levels without this proposed construction and if I understand the position of Union Electric, and if I am mistaken I hope you will correct me, if I understand his position it is that this project would have no material effect on navigable waters and what the Staff is saying to me is that the stipulation at page 16 reflects that it would have an effect on navigable waters to the extent described on page 16.

Mr. **Hobbs**. Under those conditions, that is right.

**Presiding Examiner**. This is where you part company with Union Electric?

Mr. **Hobbs**. That is right.

Mr. **Patterson**. You asked if I had any comment?

**Presiding Examiner**. Yes.

Mr. **Patterson**. Let me say for the purpose of clarifying the record that Mr. Hobbs and I in the discussion that we have just had are speaking of two different times.

**Presiding Examiner**. Would you address yourself to the time to which Mr. Hobbs has addressed himself?

Mr. **Patterson**. Mr. Hobbs and the items which are shown on page 16 of the stipulation, to have the results that are shown on page 16 it is necessary that certain conditions [45] are present. Now those conditions are shown in the full paragraph, the only full paragraph on page 15, and a complete examination of the factual data as presented here shows that the factual conditions shown on page 15 are contrary to the normal operation of this project.

**Presiding Examiner**. Do they occur at any time?

Mr. **Patterson**. I will say this. It is possible that they will occur. However, to do so, for these conditions to occur, Union Electric Company would have to act arbitrarily. We would have to jeopardize the effectiveness of our project and the dollars we have invested in the project to set up the hypothetical conditions on page 15 in that full paragraph.

Now again let me go back if I may. We start out with the small dam across the East Fork of the Black River. We impound 6,350 acre-feet. We believe beyond that point we will pass downstream all the water coming in the pool from the streams above. We keep using this same water up and down, up and down the side of the mountain.

If we were to pump 4,350 acre-feet up on top of the mountain we have reduced the amount of water in our lower pool from 6,350 acre-feet down to 2,000 acre-feet, from a water level of 750 feet above mean sea level down to 735 above mean sea level. Now we will maintain that pool at that level, that 735 level, as long as the upper pool is full.

Now, if we do not maintain it there we have lost efficiency in this project. If we allow that pool to build back up to 750, we have lost efficiency in the project because we have lost head. From an economical point of view, we are going to maintain that lower pool at 735.

Now, number two, if we were to allow the water to build up behind this dam when the upper pool is full and then turn on the plant and discharge into this lower pool 6,800 cubic feet per second, we would flood properties downstream by flowing over the top of the dam that we have no flood rights over. We would incur legal liability.

If we keep this lower pool at the 735 level when the upper pool is full all of the activity in this—I mean all the activity resulting from the operation of the plant, the generating cycle of the plant will be confined to this lower pool without affecting downstream at all. All of the power [46] waves and everything will wander around in this lower pool.

Presiding Examiner. Let me see if I understand what your position is. You referred to the only full paragraph on page 15. Is it your view that the situation described in that paragraph is an impossible situation to occur?

Mr. Patterson. I will say it is not impossible, sir, because it is possible we could act in this manner. It is highly improbable we would.

Presiding Examiner. Do you have such complete control in this situation that you can operate always as you hope to operate?

Mr. Patterson. We will concede that it is possible, for example, that the sluiceways that will be located in this dam could possibly suffer a mechanical failure and be closed at this point of mechanical failure and the water that should be passing through the dam and on downstream could not so pass.

Presiding Examiner. That is one possibility. Are there not other possibilities?

Mr. Patterson. We could act arbitrarily.

Presiding Examiner. I don't think anyone is going to assume that Union Electric would operate in an arbitrary or highly unreasonable manner, but are there not other possibilities, weather conditions are other factors that may enter into this.

Mr. Patterson. It is possible that we can have a flow into this lower pool so great that the sluice gates can not handle it. Now we will concede that this is possible. But the facts show, and I direct your attention to page 10 of the stipulation—and we are now speaking of the flows in the East Fork of the Black River at the site of the proposed dam—50 cubic feet per second 50 percent of the time, 2,000 cubic feet per second less than one half of one percent of the time, has exceeded 7,000 cubic feet per second on three occasions in 18 years.

Presiding Examiner. An average of once every six years.

[47] Mr. Patterson. Yes, sir. Now in that instance it is possible that we will have an increased lower pool with full upper pool. We are dealing with once every six years.

Presiding Examiner. We don't know whether we are dealing with once every six years or not. We know of three occasions it occurred in 18 years. I don't know that they are spaced six years apart. It would seem unusual that they would be. It is entirely possible that this could occur twice in one year.

Mr. Patterson. It is possible. It is highly improbable.

Presiding Examiner. Is it not probable that at sometime in the future the instances described in three on page 10 will occur?

Mr. Patterson. It is possible.

Presiding Examiner. Is it not probable?

Mr. Patterson. It is probable that the instances described on page 10 will happen, but I doubt if they will happen with any increased regularity.

Presiding Examiner. I don't know they will happen with any increased regularity, but they will happen from time to time. I think that is the inference to be drawn therefrom.

Mr. **Patterson**. That is very true. To do this then I think it is necessary to examine the results of what would happen if we got a 7,000 cubic feet flow. This is not the results you are talking about back on page 15.

**Presiding Examiner.** You shifted the situation back to page 10.

Mr. **Patterson.** That is true.

**Presiding Examiner.** Could there not be a concurrence of these times?

Mr. **Patterson**. Again we are going to get down to the question of possibility versus probability.

**Presiding Examiner.** It seems to me that among other problems which may arise here is the problem of jurisdiction. The problem of jurisdiction is possibly not dependent upon the probabilities but rather on the problem [48] of possibilities. For example you take—this may not be a completely analogous situation, but I will put it forward for your consideration—you take for example in the Securities Act where securities are offered, an offering generally to one person but not for investment, just an ordinary offering of a security, it may very well be a sale subject to the Securities Act. It is not probable that person will engage in extensive operations in the sale of that security on an interstate basis, nevertheless jurisdiction attached normally in such a situation.

I only point that out to you to indicate the possibility—I have no fixed opinion on this yet. I have not read the briefs and I don't know enough about the facts to be able to come to any conclusion about this yet, and I will have to give very careful consideration to all the factual material which will be introduced here before I could express any definitive opinion, but I point this out to you because it seems to me the problem of jurisdiction should not be dependent solely on an improbability occurring, as you may wish to put it, when in fact the kind of thing to which you have referred on page 10 has in fact occurred at least three times in the last 18 years.

This involves a question of law. Certainly the Examiner nor the Commission is in the position to prophesy what may happen in the future. I don't think we should be called upon to conjecture. All we know is that it happened in the past and it may happen in the future.

There is no reason to assume it will not happen in the future. This being a matter dependent upon the laws of nature.

Mr. PATTERSON. This is very true. May I say without question I believe one of the things that will be briefed in this matter will be this question—I believe the Commission Staff will take the view that the mere capability is sufficient for jurisdiction to attach.

PRESIDING EXAMINER. That is what I was attempting to express.

Mr. PATTERSON. We feel when you are speaking under 23(b), a project, what it may or may not do—we are dealing with a project not in operation—there is a certain amount of conjecture necessary. In judicial decisions on [49] this problem we feel that the courts have directed the Commission to consider not the capability, not the possibility, but the probabilities of occurrence, the probabilities of material effects.

PRESIDING EXAMINER. You were using the term conjecture. I had indicated what seemed to me as a reasonable inference of possible from this stipulation is that since certain conditions have occurred at least three times during the last 18 years, and so far as I know there is nothing in the stipulation to indicate any change in the general terrain of this area we are considering, it would not be merely a conjecture but reasonable inference to indicate the probability, that it would probably occur again within the next 18 years.

Mr. HOBBS. Mr. Examiner, addressing myself to that point, at the bottom of page 14, continuing over through to the top of page 15, there are listed four conditions which could happen any time to create the conditions that are listed down below. Those could happen at any time.

Now in addition to that——

PRESIDING EXAMINER. In other words, you are suggesting that perhaps discussion of the stipulation, the language of the stipulation on page 10 is not really so relevant as the language on page 14 as it affects the language on page 15 and 16.

Mr. HOBBS. I am not saying the language on page 10 is not relevant.

**Presiding Examiner.** I tried to say that in your view the statement on page 14 would be more relevant than the statement on page 10?

**Mr. Hobbs.** I think it goes to the question of to what extent the need for this provision of the act came in existence. We have never had an applicant come in here and contest jurisdiction and concede it was going to affect interstate commerce or downstream capacity. I don't think jurisdiction is limited to downstream navigability capacity. Assuming we are talking about downstream navigability capacity, I refer you to Volume 19 of the Commission's decisions starting at page 704 and the state-[50] ment on page 713 in which they adopted the Examiner's decision——

**Presiding Examiner.** What case is that?

**Mr. Hobbs.** Carolina Aluminum Company, 19 FPC.

**Presiding Examiner.** Do you gentlemen want to have a morning recess?

**Mr. Hobbs.** I would just as soon continue this part.

**Presiding Examiner.** We will take a ten minute recess.

(Whereupon, at 11:20 a.m. the hearing was recessed until 11:30 a.m.)

**Presiding Examiner.** The hearing will please come to order. I believe, Mr. Hobbs, you were speaking at the time.

**Mr. Hobbs.** When we recessed we were referring to the Carolina Aluminum Company case and Carolina Power and Light Company starting at 19 FPC at page 704. I have particular reference to the statement on page 713 which reads as follows: "In determining the jurisdiction of this Commission based upon the downstream effect of any hydro-electric development on navigable capacity, such jurisdiction does not depend upon the manner in which the hydro-electric development has been operated in the past or is proposed to be operated in the future but upon the effect which such hydro-eletric development is capable of having on navigable capacity at points downstream."

As I pointed out the capability or possibilities which are referred to starting at the bottom of page 14 of the stipulation there are four listed there and those would have the effects starting at page 15 and continuing on page 16. In addition to that you have a question of capability of the plant even if the company attempted to prevent any downstream effect. You would have a situation during high flows when it would be impossible for them to prevent an effect.

**Presiding Examiner.** Is that reflected anywhere in the stipulation?

**Mr. Hobbs.** It is in the material.

[51] **Presiding Examiner.** I assume in the brief you will point that out.

**Mr. Hobbs.** Yes. According to calculations we have made so far that would be at high flows, that is flood flows approximately two feet. Of course it takes a lot more water to increase the level of a valley two feet at high flow than it does low flows because you spread all over the country. Also you are in a lot more people's chicken coops at those stages. We don't have any evidence of how many houses would be flooded or anything of that nature.

What I am saying is at high flows you do have more water to reach the same stage elevation caused by water coming down the river.

**Presiding Examiner.** I don't wish to prolong this discussion. You may make a statement if you desire to do so.

**Mr. Patterson.** Mr. Hobbs cited the Carolina Aluminum Case. Along the same line I would like to ask the Examiner to consider also the statements made by U.S. District Court and the Court of Appeals in the two Appalachian cases appearing at 23 Fed. Sup. at 104 and 107 Fed. 2d 769, where both the lower court and the Court of Appeals in the Appalachian case found the New River at the point of the dam to be non-navigable. This was later reversed. When we got to the Supreme Court they said it was navigable at this point. The two lower courts found it to be non-navigable. Once so finding they got into the question of downstream effect, the effect on navigable capacity. In the District Court they said that you do not consider the theoretical possibility of interference. You have to consider the probability of harm. Similarly in the Court of Appeals they went a step farther, they said the injury sought to be avoided must be shown to be necessarily or practically certain, not merely the probable results of the actions. They are speaking of downstream effect.

PRESIDING EXAMINER. I take it from what you have said the Supreme Court didn't pass upon the two questions to which you refer because they held the stream to be navigable and reversed the lower courts?

Mr. PATTERSON. That is true.

[52] PRESIDING EXAMINER. The Supreme Court found it unnecessary to comment on the other observations made by the Court.

Mr. PATTERSON. I may call your attention to the Appalachian case, 61 Supreme Court 291 at 304, and I quote, "The determination that the New River is navigable eliminates from this case issues which may arise only when the river is non-navigable." The citations I gave you previously had to do with the courts speaking of the downstream effect when the New River at that point was non-navigable.

PRESIDING EXAMINER. These cases seem to be quite some time ago. This case, 19 FPC, must be somewhat later.

Mr. PATTERSON. The Carolina Aluminum case is more recent. It is very recent. It is in the preliminary prints. It is not published.

PRESIDING EXAMINER. Are you suggesting that the comments quoted by Mr. Hobbs are inconsistent with the views expressed by the courts in the Appalachian case?

Mr. PATTERSON. Yes, sir. I will go a step further and say that examination of the briefs of the applicants or declarants in the Aluminum Company case did not seem to argue the question that we are speaking of here.

PRESIDING EXAMINER. You mean the point raised there was not analogous?

Mr. PATTERSON. The principal issue in that case had to do with length of term of license and whether other projects previously constructed were to be licensed and not points at issue here.

PRESIDING EXAMINER. I think, unless there is something counsel thinks very important and material we might turn to the probability of having introduced into this record the evidence upon which the stipulation was based and the stipulation ought to be introduced into evidence. I don't know exactly how you wish to go about introducing the evidence in this proceeding. Since Union Electric has brought this proceeding it would have the burden of presenting the evidence in this proceeding. I thought myself in looking this over that perhaps the first thing to do [53] would be to mark as Exhibit 1 the stipulation which was entered into by Union Electric with the staff.

Mr. HOBBS. I would like to call your attention to the index.

PRESIDING EXAMINER. That is an index of evidentiary materials. I didn't know whether you wanted to assign an exhibit number or whether you preferred to have this whole document submitted as one exhibit. First it would have to be marked for identification and then presumably after that Union Electric would move that it be received in evidence and that will take care of all the exhibits. The only thing that is on my mind about it, however, is that in the document which is labeled "Evidentiary Materials" you have the index of exhibits starting with the declaration of intention as Exhibit 1 and no exhibit number is given to the document that is marked "Evidentiary Materials."

Mr. HOBBS. I think the whole thing could be included in one item.

PRESIDING EXAMINER. Is this a document on file in the Records of the Commission?

Mr. HOBBS. Not as such. The stipulation is on file. The original of the stipulation is on file. That refers to this material listed commencing with Exhibit 1.

PRESIDING EXAMINER. If I understand you, Mr. Hobbs, what you are suggesting is that we receive in evidence the document labeled "Evidentiary Materials".

Mr. HOBBS. The material described in the first four pages of that document.

PRESIDING EXAMINER. It is only four pages and a cover sheet.

Mr. HOBBS. This is merely an index to what follows.

PRESIDING EXAMINER. I don't see that is necessarily part of the evidence at all. This is something that would be helpful to me.

Mr. HOBBS. That is right.

[54] **Presiding Examiner.** Perhaps what we might do is to mark for identification a series of exhibits marked Exhibit 1 through Exhibit 15 as described in the document entitled "Evidentiary Materials". Would that be satisfactory?

**Mr. Hobbs.** Yes.

**Presiding Examiner.** The reporter will mark for identification—do you have copies for the reporter?

**Mr. Hobbs.** Yes.

**Presiding Examiner.** He has to have two copies. There will be marked for identification a series of exhibits numbered Exhibits 1 through 15. These exhibits are described in a document entitled "Evidentiary Materials". The reporter will be directed to set forth in the index of today's transcript the description of the exhibits as they are contained in the document labeled "Evidentiary Materials". Further there will be marked for identification certain items incorporated by reference, including Items A through K inclusive, and the description of those items will also be contained in the index of today's transcript as they have been described in this document which the reporter will be given entitled "Evidentiary Materials".

If the Union or staff will move their admission into evidence.

**Mr. Hobbs.** I have one other item. I would like to have marked for identification a document entitled "Stipulation of Facts", executed by counsel for the Union Electric Company and Commission Staff Counsel as of 21st of December, 1960.

**Presiding Examiner.** That will be marked Item L. Is that stipulation a part of the record of the Commission?

**Mr. Hobbs.** That is in the files of the Commission.

**Presiding Examiner.** It will be marked Item L by reference for identification. The description of the item will appear as Mr. Hobbs has just stated in the index. Then I think if one of the parties will move for receipt in evidence the exhibits we will receive those. Will you so move?

[55] **Mr. Patterson.** I might state first that Union Electric prepared all of the documents on behalf of staff counsel and Union Electric Company.

I will so move the admission of Arabic numbered Exhibits 1 through 15 into evidence in this proceeding.

Presiding Examiner. The reporter will note the numbers of these exhibits have parts such as 2–A and 2–C. The index will carry the description of these documents exactly as they appear in the documents labeled "Evidentiary Materials". I suggest also the reporter include in the index of his transcript of today's hearing a copy of the document labeled "Evidentiary Materials". The exhibits referred to by counsel for Union Electric Company will now be received in evidence, 1 through 15 inclusive.

### *Offers in Evidence*

(The documents previously marked Exhibits 1 through 15 were received in evidence.)

Presiding Examiner. If counsel for Union Electric will move admission to evidence the items which have been identified, which are Items A through L, inclusive, I will appreciate that.

Mr. Patterson. We will so move their admission into evidence.

Presiding Examiner. Items A through L inclusive will be received in evidence.

(The documents previously identified as Items A through L by reference were received in evidence.)

Presiding Examiner. Are there any other exhibits any party wishes to have received in evidence? Hearing no response, apparently not.

Does any party desire to present any evidence through any witness? Apparently none. Is there anything further other than transcript corrections and fixing time for briefs?

Mr. Patterson. Nothing further from Union Electric.

Mr. Hobbs. Nothing.

Presiding Examiner. How much time do you wish to propose transcript corrections?

[56] Mr. Patterson. May I state that it has been tentatively agreed that Commission staff counsel will file the initial brief. This is caused by our not knowing the course they will pursue or follow on the affirmative side of jurisdiction in areas such as possibilities of effect on public lands or reservation, on the possibility that the interstate flow of power stored and released

at the plant may be a jurisdictional fact. This is the affirmative side which we feel and the Commission staff counsel agrees with us can not be countered until it has been affirmatively presented.

So by agreement they have agreed to file the initial brief, and Union Electric Company, taking what may well be the negative side of their presentation, will file a reply.

Presiding Examiner. Do you wish to be heard, Mr. Hobbs?

Mr. Hobbs. We have discussed that matter. I have no objection to filing the first brief. It is a matter of time with me. I don't have any problem of burden of proof.

Presiding Examiner. I take it by that statement you are not claiming that Union Electric does not have the burden of proof?

Mr. Hobbs. No, sir. I think the facts have been stipulated, and as far as that is concerned, that is it.

Presiding Examiner. I was addressing myself to a question—You go ahead.

Mr. Hobbs. I think Mr. Patterson has referred to an item on page 17, which I intended to refer to, but we got into discussion.

Presiding Examiner. Are you talking about stipulation?

Mr. Hobbs. Yes.

I intended to refer to it and didn't get back around to it.

That is the statement starting at the top of page 18, commencing on page 18. It says:

"However, parts of the Clark National Forest, proclaimed September 11, 1939, 4 Federal Register, page 3908, are located northeast and northwest of the proposed Taum Sauk plant. By reference to 4 Federal Register 3908, that document shows that the part of the National Forest [57] is within the watershed of the east fork of the Black River, and also refers to certain acts which authorize the acquisition of lands within the watersheds of navigable streams.

At the time we entered into the stipulation I didn't have any material with respect to the acquisition of those lands, and I don't intend to get into the situation very deeply, but I might possibly cover the point that these lands were acquired for the purposes stated in the act.

Incidentally, these lands were acquired for the watershed development, for purposes of raising timber, flood control and other purposes. That is in addition to the navigation, which is referred to in the act.

Flood control is also a subject for our regulation by Congress under the Commerce clause.

Presiding Examiner. Are you referring to the act referred to in 4 Federal Register?

Mr. Hobbs. Yes, sir.

Presiding Examiner. There are a number of references to documents which are presumably not contained in the evidentiary materials which have been received in evidence. There are other public documents. They have not been received in evidence. It raises a question as to whether I may have the right to examine and look into. The Commission's rules, particularly 126(c)(2)(ii), contains language with regard to public document items, which reads as follows:

"Whenever there is offered in evidence, in whole or in part, a public document such as official report, decision, opinion or a published scientific or economic statistical data issued by any of the executive departments, or their subdivisions, legislative agencies or committees or administrative agencies of the Federal Government (including government-owned corporations), or similar document issued by a state or its agencies and such document (or part thereof) has been shown by the offerer to have been reasonably available to the public, such document need not be produced or marked for identification but may be offered in evidence as a public document item by specifying the document or relevant part thereof without regard to the requirements of 126(c)(5)."

[58] 126(c)(5) relates to the physical production of documents in the hearing room and the giving of such documents to the parties and the reporter. So I would think it might be advisable to move the admission of the public document items referred to in the stipulation of facts.

Off the record.

(Discussion off the record.)

Presiding Examiner. On the record.

Mr. Hobbs?

Mr. **Hobbs**. I would like to have identified by reference a letter dated January 26, 1961, addressed to Mr. J. H. Gutride, Secretary of the Federal Power Commission, signed by A. G. Lindh, Secretary. He is secretary of the National Forest Reservation Commission—transmitting a letter to the President, dated August 29, 1933, a 2-page letter, and a document entitled, "Minutes of Meeting of the National Forest Reservation Commission," Wednesday, August 30, 1933, pages 1, 4, 5 and 8. Pages 2 and 3 are missing, and page 7 is missing. These are the only matters relating to this particular subject.

**Presiding Examiner**. Is there anything else?

Mr. **Hobbs**. And two photostatic pages, clipped together, entitled, "For Boundaries of New National Forest Purchase Units and Additions to Existing Units", and over in the right-hand corner, "Milwaukee, Wisconsin, August 17, 1933."

I have specific reference to the Missouri-Clark Unit, Clark National Forest, and the primary purpose for which the unit is to be established reads: "Production of timber, Erosion control, production of forage, prevention"——

**Presiding Examiner**. You don't have to go into that detail. You can refer to it later and call my attention to it later.

Is there any more to the document than you have just read?

Mr. **Hobbs**. And a letter dated January 24, 1961. It is a copy of a letter, to Mr. Exel Glindh, Secretary of the National Forest Reservation Commission. That completes the document.

[59] **Presiding Examiner**. That will be marked Item M by reference.

Do you move its admission?

Mr. **Hobbs**. Yes.

**Presiding Examiner**. Is there any objection?

Mr. **Patterson**. No objection.

**Presiding Examiner**. The item will be received in evidence.

(The material referred to was received in evidence as Item M, by reference.)

**Presiding Examiner**. When you were reading from part of the item you evidently intended to call my attention to something. It wasn't necessary for purposes of having it marked for identification. If there is something you wish to say about the item, you may say so.

Mr. Hobbs. Most Examiners prefer to have the part identified so they won't have to look for it.

The part I had reference to primarily was the part, the column entitled, "Primary Purpose for Which Unit Is to Be Established", with reference to the Clark Unit. It is "Production of Timber, erosion control, production of forage, prevention of run-off, demonstrational areas, stabilization of employment, flood control."

Presiding Examiner. We have received in evidence Item M by reference. Is there some statement you may wish to make?

Mr. Patterson. No, sir.

I would like to go on to another document similar to which Mr. Hobbs has agreed.

I would ask there be marked for identification, as an item incorporated by reference, Item N, a document entitled "Clark National Forest Purchase Unit", published in 1937 by the National Forest Service, Department of Agriculture.

Presiding Examiner. Is that a document that is on file with the Commission?

Mr. Patterson. I don't think so.

[60] Presiding Examiner. You can obtain the admission of that document by moving admission pursuant to 126(c)(2). That is not an item by reference. That would be Roman one.

Mr. Patterson. Would you like to go back and strike from the record——

Presiding Examiner. Is there any further description of the document you wish to make?

Mr. Patterson. I have completed my description of that document.

Presiding Examiner. Would you move that document under 126(c)(2)?

Mr. Patterson. I so move.

Presiding Examiner. That will be received in evidence under 126(c)(2) and will be marked Roman one. You will index it under Roman numeral one.

(The material referred to was received in evidence as Item I, by reference.)

**Presiding Examiner.** Was there something else?

Mr. **Hobbs.** I have here a reference to an Act of Congress. I assume the Examiner will take judicial notice of that?

**Presiding Examiner.** Yes, I will.

Will you identify the Act of Congress that you wish me to take judicial notice of and where it may be found?

Mr. **Hobbs.** It will be found in statutes at large. The particular part I have reference to is Section 6 of the so-called McNamara Act, 43 Stat. 654, Sec. 6.

**Presiding Examiner.** You ask me to take official notice of that?

Mr. **Hobbs.** Yes.

**Presiding Examiner.** The reporter, in his index, under the heading "Official Notice", will describe the document just identified by Mr. Hobbs.

(The document referred to was identified for official notice by the examiner.)

[61] Mr. **Patterson.** I have no objection to taking judicial notice of this statute. I do want to say I can't certainly be bound to name every statute that I might refer to in brief, either state or federal.

**Presiding Examiner.** I don't think that is necessary, nor is it practical to do it. However, it is advisable to present these during the course of the hearing whenever possible so your adversary may be cognizant of any particular document that may be relied upon, and thus have the opportunity of reading it and determining whether he considers it relevant.

Mr. **Patterson.** I can't predict whether I will have any statutory references or not.

**Presiding Examiner.** You don't have to worry about anything of that sort.

Certainly, if you refer to the statute at large, I don't think you have to have official notice.

Now, there was another document, 4 Federal Register 3908, I assume you wish introduced as Roman Numeral Two, pursuant to Rule 126(c)(2)?

Mr. **Hobbs.** Yes. I so move.

Presiding Examiner. That will be received as Roman Numeral Two.

(The document referred to was received in evidence as Item II, by reference.)

Presiding Examiner. Getting back to page 11, are there any documents there, outside of his House of Representatives Document No. 102, 73d Congress, 1st Session, which you wish me to take official notice of?

I assume from the discussion that the parties will be content to rest on the references and statements made on page 11.

Mr. Hobbs. In view of my understanding as I discussed it previously, that is right.

Presiding Examiner. I will take official notice of that. That will be under the section of your index labeled "Official Notice."

(The document referred to was identified for official notice by the examiner.)

[62] Presiding Examiner. Is there anything further, aside from the proposed transcript corrections?

How much time would you like to have for the purpose of presenting proposed transcript corrections?

Off the record.

(Discussion off the record.)

Presiding Examiner. On the record.

On what date would you like to have your proposed transcript corrections?

Mr. Hobbs. Approximately 10 days or two weeks.

Mr. Patterson. I would propose transcript corrections be filed by Friday, February 10.

Presiding Examiner. Will that be satisfactory?

Mr. Hobbs. Yes.

Presiding Examiner. It will be so ordered.

Now, on the problem of briefs, when, Mr. Hobbs, would you wish to file your initial brief?

Before we get to that, there is one other thing, and that is the number of briefs. Presumably if I understand the agreement which the parties have reached, the staff will prepare the initial brief and then there will be an answering brief by Union Electric.

Will the staff desire the opportunity to file a reply brief?

Mr. Hobbs. Yes.

Presiding Examiner. Will that be satisfactory to you?

Mr. Patterson. Yes, it will. I hate to say at this time that we will or will not file sir reply.

Presiding Examiner. It is not ordinarily permissible under our rules. This is rather different than anything I have come to in the matter of briefs, where the applicant isn't to file the initial brief. If that is what the parties want to do, I will permit it.

Mr. Patterson. We felt in the discussions we have had leading up to this stipulation that to a very great extent a filing of the initial brief by the Union Electric would be needless.

[63] Presiding Examiner. I will provide first for the filing of initial brief by the staff and filing of answering brief by Union Electric, and filing of reply brief by the staff.

I rather doubt that the staff would include in its reply brief material not directed towards the answering brief of Union Electric.

However, if this should occur, perhaps Mr. Hobbs and you might be able to enter into some stipulation as to sir reply.

Mr. Patterson. That will be satisfactory with me.

Mr. Hobbs. I might state I intend to cover the field in my main brief and confine my reply brief to rebuttal.

Presiding Examiner. In the event the staff should go outside of an answer to the answering brief and Union Electric feels that there is some impelling reason why they should file a reply brief, I assume counsel for Union Electric will get in touch with you.

When would you want to file your initial brief?

Mr. Hobbs. I am pretty jammed up. I am going to need at least to March 15. I will try to make it by March 15. I have another brief I am starting right now. I have another case I have to prepare material on.

Presiding Examiner. Will that be satisfactory?

Mr. Patterson. I would like to state——

Presiding Examiner. When do you intend to go forward with this project? Do you have any pecific dates?

Mr. Patterson. Can we go off the record?

Presiding Examiner. I want it on the record. I will tell you why I want it on the record. There has been considerable criticism of administrative agencies in general in so far as the matter of delay is concerned. I realize some of the criticism is just and some of it is unjust. I am very sensitive.

Mr. Patterson. I might say this declaration of intention was filed February 1, 1960 with this Commission. Because of the tremendous importance to Union Electric Company and its consumers of electric energy a series of conferences were held between members of the Staff and [64] representatives of the company in April and May of 1960 at which time it was agreed by those two parties, the only two parties to this proceeding, that upon the filing of a skeleton license application Union Electric Company could proceed with construction work not involving the East Fork of the Black River, and we are in the course of construction on the project now, not involving the flows of the East Fork of the Black River.

We are doing such things as the construction of the upper pool, construction of the tunnel and conduit, excavation for the pumping and generating station, construction of roads, and things of that nature. We do have a skeleton license application on file with this Commission.

I might say, and this again has been stated by representatives of the Company and acknowledged by the Staff, there is no question or appears to be no question that the project will be constructed and will be operated. If it is finally determined that the Commission has jurisdiction to require a license for this project Union Electric Company will accept a reasonable license.

Presiding Examiner. The problem I have at the moment is the simple problem of filing briefs. Mr. Hobbs has indicated he has many other cases. Is there any objection to March 15 being fixed as the time which Mr. Hobbs shall file his brief?

Mr. Patterson. There is no objection.

Presiding Examiner. We will fix March 15, 1961, on or before March 15, 1961, the Staff will file its initial brief. How much time will you require for your answering brief?

Mr. Patterson. The company will file its answering brief on or before April 5, 1961.

**Presiding Examiner.** Will that be satisfactory to the Staff?

**Mr. Hobbs.** I have a hearing starting on the sixth. It is likely to last some time.

**Presiding Examiner.** You have no objection to the brief being filed on April 5. Your problem is how much time you will need to answer it.

[65] **Mr. Hobbs.** It won't take very long to answer it, I don't believe, once I get started on it. As a matter of fact, I just as soon argue it today.

**Presiding Examiner.** I would like to have briefs. The question is when will there be a reply filed to this brief Union Electric expects to file on April 5, 1961?

**Mr. Hobbs.** You fix some date.

**Presiding Examiner.** You fix the date.

**Mr. Hobbs.** I know I have a hearing starting on April 6.

**Presiding Examiner.** We have to come to some conclusion. If you need additional time, you might have to ask for it.

**Mr. Hobbs.** Fix 30 days.

**Presiding Examiner.** That will bring us into May. Maybe we could do this, suppose I fixed three weeks, April 26 as the time for the filing of the reply brief and if you are still actually engaged in this other matter which begins on April 6, that you then request an extension and I will rule on the amount of time needed for the filing of reply brief. Would that be satisfactory?

**Mr. Hobbs.** Yes, sir.

**Presiding Examiner.** Would that be satisfactory to you?

**Mr. Patterson.** Yes, sir.

**Presiding Examiner.** April 26 for filing of reply brief.

**Mr. Patterson.** I would like to say, consistent with what the Examiner has stated, Union Electric is very anxious in expediting matters.

**Presiding Examiner.** I appreciate that. I assume Union Electric will want me to read these briefs. I will read the documents I hope before March 15, before the initial brief is filed. How much time I will need to write the decision depends upon how difficult the problem is or how simple the general problem is.

I will of course try to issue a decision promptly. Until I get these briefs I can hardly be expected to issue any statements as to when the decision will be issued.

Is there anything further?

[66] Mr. Hobbs. No, sir.

Mr. Patterson. Nothing further from the company.

Presiding Examiner. The hearing will be closed.

(Whereupon, at 12:50 p.m. the hearing was closed.)

---

## Before the Federal Power Commission

*Errata to Transcript of Hearing—December 5, 1961*

[Title omitted.]

The following proposed corrections to the transcript of hearing in the above-entitled matter held January 31, 1961 (Volume #1) has been approved by the Presiding Examiner:

### Corrections by Union Electric Company

| *Page* | *Line* | *Correction* |
|---|---|---|
| C | 7 | "of" should be "on". |
| F | 22 | "1958" should be "1959". |
| G | 15 | Insert "*Items Received Pursuant to Rule 126(c)(2)(ii)*" |
| 8 | 2 | Insert "a" after "examiner". |
| 8 | 9 | "issued" should be "used". |
| 8 | 10 | Strike the comma after "land". |
| 8 | 10 | "land" should be "lands". |
| 8 | 10 | "issued" should be "used". |
| 8 | 14 | Insert "on" after the comma. |
| 8 | 20 | "for us" should be "which will later be used". |
| 8 | 23 | "The power" should be "The plant". |
| 8 | 23 | "power" should be "energy". |
| 8 | 23 | Insert "at" after generated. |
| 8 | 23 | Insert "near St. Louis and" after "plants" before "transmitted". |
| 8 | 24 | "power" should be "energy". |
| 9 | 1 | Insert "to" after the comma. |
| [67] | | |
| 9 | 3 | Insert "it is released and allowed to flow through" after "as". |
| 9 | 4-5-6 | Strike "the lower pool I spoke of from which the water is initially drawn on the storage cycle, created by the impoundment—strike that". |
| 9 | 10 | "the immediate" should be "an intermittent". |
| 9 | 12 | "393" should be "395". |
| 9 | 16 | "Contained" should be "Constructed". |

| Page | Line | Correction |
|---|---|---|
| 10 | 1 | Insert "the White River, which is in turn tributary to" before "the". |
| 10 | 13 | Insert "is" after "It". |
| 10 | 13 | "shows" should be "shown". |
| 10 | 14 | "where" should be "when". |
| 10 | 14 | Insert "had" after "have". |
| 10 | 17 | Strike the period. |
| 10 | 18 | "All" should be "all" and no paragraph. |
| 10 | 19 | Insert "of the time" after per cent. |
| 10 | 21 | Strike the period. |
| 10 | 21 | Insert "when" after "nature". |
| 10 | 22 | "We" should be "we". |
| 11 | 4 | "prblem" should be "problem". |
| 11 | 5 | "four" should be "of". |
| 11 | 6 | Insert "a" after "is". |
| 11 | 12 | "in" should be "on". |
| 11 | 13 | Strike "The". |
| 12 | 3 | "of" should be "to". |
| 12 | 4 | "of the" should be "on the". |
| 12 | 5 | Strike the period. |
| 12 | 5 | "Above" should be "above". |
| 12 | 5 | Insert a period after "confluence". |
| 12 | 5 | "and" should be "And". |
| 12 | 6 | Strike "a". |
| 12 | 6 | "clear water" should be "Clearwater". |
| 12 | 10 | "this" should be "the". |
| 12 | 13 | "waterway, that is" should be "water way, that is" |
| 12 | 18 | Insert "in the" before "breadest". |
| 12 | 19 | Insert "that" before "we". |
| 13 | 22 | "on" should be "or". |
| [68] | | |
| 13 | 24 | "a fact" should be "effect". |
| 14 | 4 | "would be adverse" should be "would not be adverse". |
| 14 | 6 | "factors" should be "facts". |
| 14 | 14 | "it has an effect" should be "if it has an effect". |
| 14 | 15 | "probablem" should be "problem". |
| 15 | 24 | "Counsel and Commission Staff" should be "Commission Staff Counsel". |
| 16 | 3 | "overhang" should be "overflow". |
| 16 | 7 | "fails" should be "are". |
| 16 | 9 | Insert "we will" after "feel". |
| 16 | 12 | "this" should be "there". |
| 16 | 12 | Insert "of effect" after "possibility". |
| 16 | 12 | "factors" should be "facts". |
| 18 | 2 | Strike "East". |
| 20 | 18 | "State" should be "States". |
| 20 | 18 | "possibly Iowa" should be "Missouri". |
| 20 | 20 | "energy" should be "an". |
| 22 | 17 | "Yes" should be "No". |
| 22 | 17 | Strike "I might say in the negotiations". |

| *Page* | *Line* | *Correction* |
|---|---|---|
| 22 | 18 | Strike "leading up to the Stipulation—strike that". |
| 24 | 7 | "In" should be "On". |
| 24 | 8 | "east forge" should be "East Fork". |
| 24 | 8 | "in" should be "on". |
| 24 | 16 | Insert "an" after "up". |
| 24 | 16 | "discharge" should be "charge". |
| 24 | 21 | "rating" should be "generating". |
| 24 | 23 | "flowed" should be "flow". |
| 24 | 24 | Insert "to" after "in". |
| 24 | 25 | "the" should be "a". |
| 25 | 4 | "is pumped" should be "flows". |
| 25 | 5 | Strike "then". |
| 25 | 8 | "Esk" should be "East". |
| 25 | 21 | Insert "that" after "feel". |
| 29 | 1 | Insert "feet above" after "750". |
| 29 | 1 | Insert "sea" after "mean". |
| 29 | 18 | "rating" should be "generating". |
| 30 | 10 | "or" should be "and". |
| 31 | 11 | "on" should be "of". |
| [69] 34 | 2 | "be the" should be "be this". |
| 38 | 23 | Strike "they". |
| 39 | 3 | "effect of" should be "effect on". |
| 39 | 8 | Insert "to be" after "shown". |
| 40 | 18 | "or" should be "and". |
| 59 | 19 | Insert "East Fork of the" before "Black". |
| 59 | 23 | "or" should be "of". |
| 60 | 4 | Insert period after "operated". |
| 60 | 4 | "if" should be "If". |
| 60 | 6 | Strike the period. |
| 60 | 7 | Insert a period after "license". |
| 60 | 7 | Strike "if that determination as far". |
| 60 | 8 | Strike "as jurisdiction has been determined". |

Approved December 5, 1961.

SAMUEL BINDER, *Presiding Examiner*.

---

## Before the Federal Power Commission

### *Stipulation of Facts—Dated December 21, 1960*

[Title omitted.]

Come now Union Electric Company and the Staff Counsel of the Federal Power Commission and report as follows:

Whereas, Union Electric Company, on February 1, 1960, filed with the Federal Power Commission pursuant to Section 23(b) of the Federal Power Act (16 U.S.C., § 817) a declaration of intention; DI 212, in which Union Electric Company announced its proposal to construct, operate and maintain a pumped-storage electric generating project described therein, and in which Union Electric Company prayed that the Federal Power Commission, following an investigation, find that the interests of interstate or foreign commerce would not be affected and that public lands or reservations would not be affected;

[70] Whereas, the Staff of the Federal Power Commission has made an investigation of the proposed project and said Staff has concluded that construction, operation and maintenance of the proposed project would affect the interests of interstate or foreign commerce;

Whereas, there are no unresolved factual matters, but only unresolved and disputed questions of law; and

Whereas, it is in the interest of the parties hereto that the proceedings necessary to resolve the disputed questions of law be expedited and the record shortened, and to accomplish these objectives the said parties desire to stipulate as to the truth of the factual matters involved.

Now Therefore, It Is Hereby Stipulated That:

## (I) General Statements and Location

Union Electric Company (hereinafter called "Company") proposes to construct and thereafter operate and maintain a pumped-storage electric generating project, to be known as its Taum Sauk Plant, and related transmission facilities. The plant will be located on and near the East Fork of the Black River in Township 33 North, Range 2 East, Reynolds County, Missouri.

For the purpose of determining the question of the jurisdiction of the Federal Power Commission (hereinafter called "Commission") to require a license authorizing construction, operation and maintenance of said project works, the factual record shall be limited to the documents listed below and to this Stipulation of Facts. The following documents are by this reference incorporated herein:

(1) Declaration of intention, filed by Company with the Commission on February 1, 1960, and assigned Docket No. E-6927, DI 212;

(2) Three exhibits (Exhibits A, B, and C) filed with and made a part of the declaration of intention, see item (1) above;

(3) Seven engineering drawings prepared by Sverdrup & Parcel Engineering Company and supplied by Company with the declaration of intention but not made a part thereof;

[71] (4) Letter, dated February 24, 1960, and enclosures, from Company to the Commission, forwarding to said Commission copies of orders of the Missouri Public Service Commission and the County Court of Reynolds County, Missouri;

(5) Letter, dated March 1, 1960, from the Missouri Public Service Commission to the Commission stating the position taken by the Missouri Public Service Commission on the proposed project;

(6) Letter, dated March 29, 1960, and enclosures, from Company to the Commission relative to a sluice or discharge valve to be installed in the proposed dam and relative to flows in the East Fork of the Black River;

(7) Letter, dated April 12, 1960, and enclosures, from Company to the Commission relative to the effect of operation of the proposed project on high flows in the East Fork of the Black River;

(8) License application filed by Company with the Commission on June 10, 1960, and assigned Project No. 2277;

(9) Nine exhibits (Exhibits A, B, E, G, J, K, L, M, and O) filed with and made a part of the license application, see item (8) above;

(10) Letter, dated August 10, 1960, from the Office of the Chief of Engineers, Department of the Army, to the Chairman of the Commission, on Project No. 2277;

(11) Two exhibits (Exhibits I and N) to the license application filed by Company on September 5, 1960, supplementary to the exhibits mentioned in item (9) above;

(12) Letter, dated September 13, 1960, and enclosure, from the Commission to Company forwarding a copy of a letter dated September 2, 1960, from the United States Department of the Interior;

(13) Letter, dated September 19, 1960, from Company to the Commission commenting on the letter from the Department of the Interior; see item (12) above;

[72] (14) Three exhibits (Exhibit I, Exhibit K Sheet 2, and Exhibit L, Sheet 2) to the License application filed by Company on December 7, 1960, supplementary to and amending exhibits mentioned in items (9) and (11) above;

(15) Map of the basin of the East Fork of the Black River and the upper basin of the Black River prepared by the Staff of the Commission;

(16) Annual Report, FPC Form No. 1, and Power System Statement, FPC Form No. 12 filed by Company for the years 1955 through 1959, inclusive.

The purpose of this stipulation is to supplement the factual statements made in the above listed documents. To the extent that the factual statements in the above listed documents are not inconsistent with the statements in this stipulation, the completeness and accuracy of the factual statements in said documents are hereby stipulated. To the extent that the factual statements in said documents are inconsistent with the statements in this stipulation, the statements herein shall prevail. Neither party hereto shall be considered bound by conclusions, as distinguished from factual statements, contained in said documents.

## (II.) Basin Description

The East Fork of the Black River rises on the eastern portion of the Ozark plateau, on the southern slope of a ridge in the St. Francois Range in Iron County, Missouri, at elevation approximately 1,450 feet above mean sea level, approximately one and one half miles southwest of Graniteville, Missouri, and approximately 14 miles upstream from the site of the dam which will be part of the proposed project. From its source, the stream flows southwest approximately nine miles where it is joined by Imboden Fork at elevation 825 feet above mean sea level. The average fall in this reach is about 80 feet per mile. Tributary to Imboden Fork is Shut-in Creek on the west.

For the next two miles the East Fork of the Black River flows south through a deep gorge known as Johnson Shut-in with a rate of fall in this reach of about 38 feet per mile.

[73] In the next two and one half miles the East Fork of the Black River is joined by two intermittent tributaries, Walker Branch Creek from the west and by Taum Sauk Creek from the east, and then enters another narrow gorge which is the site of the proposed dam which will create the lower pool of the project. The site is 293.5 river miles above the mouth of the Black River at its confluence with the White River. The rate of fall in the reach just above the damsite is approximately 20 feet per mile. Elevation of the stream at the damsite is about 700 feet above mean sea level.

Below the site the proposed dam, the East Fork of the Black River flows south for four miles through a broad, shallow, gravel-bottom stream bed to a point about one mile southeast of Lesterville, Missouri, where it empties into the combined West and Middle forks of the Black River, the main stream of the Black River. Elevation of the stream at its mouth is 635 feet above mean sea level. The rate of fall of the East Fork in the reach above the mouth is about 16 feet per mile.

The Black River then flows approximately ten and one half miles through a broad, shallow stream bed, to the head of the federal Clearwater Dam flood pool, at elevation 567 feet above mean sea level, then twelve miles to the head of Clearwater Dam conservation pool, at elevation 494 feet above mean sea level, and then seven and one-half miles to Clearwater Dam, the base of which is 454 feet above mean sea level. Below Clearwater Dam, the Black River flows into the White River near Newport, Arkansas, which in turn empties into the Mississippi River at a point 45.7 miles above Arkansas City, Arkansas.

The approximate location of the points of interest along the Black River and the East Fork of the Black River are shown in the following table:

[74]

| *Place* | *River mile measured from the mouth of the Black River at Jacksonport, Ark.* |
|---|---|
| **Based on Corps of Engineers and U.S.G.S. Data** | |
| Jacksonport, Arkansas | 0 |
| U.S.G.S. gage at Poplar Bluff, Missouri | 211.2 |
| U.S.G.S. gage near Leeper, Missouri | 251.0 |
| Leeper, Missouri | 251.5 |
| Damsite for DI No. 100 | 253.5 |
| Clearwater Dam | 257.4 |
| **Based on Company Exhibits and U.S.G.S. Data** | |
| Clearwater Dam | 259.5 |
| Head of Clearwater Dam Conservation Pool | 267.0 |
| U.S.G.S. gage near Annapolis, Missouri | 278.5 |
| Head of Clearwater Dam Flood Pool | 279.0 |
| Confluence of East Fork of Black River with Black River | 289.5 |
| Lesterville, Missouri, U.S. Highway No. 21 Bridge | 290.2 |
| Proposed damsite, Taum Sauk Project | 293.5 |
| Proposed pumping and generating station, Taum Sauk Project | 295.5 |
| Head of proposed power pool, Taum Sauk Project | 296.0 |
| Confluence, Imboden Creek with East Fork | 298.0 |
| Source of East Fork of Black River | 307.0 |

## (III) EXISTING RESERVOIRS

At mile 257.4 above the mouth of the Black River, about six miles northwest of Leeper, Missouri, the Corps of Engineers completed the Clearwater Dam flood control project in 1951. The reservoir capacity is 413,700 acre feet at crest of spillway, elevation 567 feet above mean sea level. Drainage area of the watershed above Clearwater Dam is 898 square miles. Under normal operating conditions, only 21,920 acre feet of permament storage are maintained at ele-[75] vation 494. Clearwater Dam is approximately 34 miles downstream from the site of the proposed dam and 30 miles downstream from the mouth of the East Fork of the Black River.

## (IV) STREAMFLOW

In January, 1960, the State of Missouri, in cooperation with the U. S. G. S., established a stream gaging station (Lesterville) on the East Fork of the Black River at Highway No. 21 Bridge, 290.2 river miles above the mouth of the Black River, 0.7 river miles above the mouth of the East Fork, and 3.3 river miles downstream from the site of the proposed dam. Datum of this gage is 655.34 feet above mean sea level and the gage measures the flow from a drainage area of 94.5 square miles. Prior to September 30, 1960, twelve discharge measurementments were made. A recording gage has made a continuous record of gage heights. The discharge records, as computed by U. S. G. S. personnel, are rated as "good, except for periods of no gage-height record" (January 1 through 13, February 12, 13, 15, 19, 20, 22 through 28). Readings at the Lesterville gage for the period January 1 through September 30 show a maximum discharge of 2080 cubic feet per second at 10:00 a. m. on May 6 and a minimum discharge of 0.9 cubic feet per second on September 18, and further show the following:

| | Mean discharge (cfs) | Maximum discharge (cfs) | Minimum discharge (cfs) |
|---|---|---|---|
| January | 92.9 | 446.0 | 49.0 |
| February | 111.0 | 610.0 | 31.0 |
| March | 171.0 | 610.0 | 27.0 |
| April | 98.6 | 324.0 | 44.0 |
| May | 148.0 | 1220.0 | 25.0 |
| June | 14.8 | 27.0 | 8.2 |
| July | 6.55 | 9.1 | 4.8 |
| August | 4.69 | 7.7 | 3.0 |
| September | 2.79 | 10.0 | 1.0 |

The U. S. G. S. has since 1939 maintained a stream gaging station (Annapolis) on the Black River at river mile 278.5, eleven miles below the mouth of the East Fork. [76] Datum of the gage is 569.72 feet above mean sea level. This station measures the flow from a drainage area of 484 square miles of the combined three forks of the Black River and of the main stream of the Black River below the mouth of the East Fork. The average discharge for the 18-year period ending September 30, 1957, is 582 cubic feet per second. Corresponding gage height is 3.6 feet. Minimum gage height of record, 1.36 feet, occurred on September 25–28, 1948. Maximum discharge of 45,400 cubic feet per second occurred on June 8 and 10, 1945, at gage height of 20.1 feet. The minimum discharge of 66 cubic feet per second occurred September 14–18, 1954, and September 18–20, 1955. The most recent rating table shows a gage height of 2.3 feet occurs when the flow is 70 cubic feet per second.

The flow at Annapolis gage is swift and turbulent at high stages. The stream bed is composed of rock and gravel and is fairly permanent. There is one channel at low and high stages and two channels at medium stages. At the gage the right bank is high and not subject to overflow and the left bank is overflowed at extremely high stages, the amount being small. The channel is straight for 1,000 feet above the gage and 500 feet below at high stages. Discharge measurement notes show the following:

Discharge Measurement Notes

| Date | Width, feet | Area, square feet | Average velocity, ft/sec | Gage height, feet | Discharge CFS | Maximum velocity, ft/sec |
|---|---|---|---|---|---|---|
| 8-25-59 | 112 | 93.6 | 1.19 | 2.28 | 111 | 1.90 |
| 4- 9-57 | 104 | 569.0 | 2.22 | 4.51 | 1,270 | 3.28 |
| 3-31-45 | 620 | 2,200.0 | 3.35 | 8.96 | 7,380 | 7.94 |
| 4-14-45 | 768 | 8,280.0 | 3.97 | 17.00 | 32,900 | 7.86 |

The mean, maximum and minimum flows at the Annapolis gage for the period January 1 through September 30, 1960, are tabulated below:

|  | Mean discharge (cfs) | Maximum discharge (cfs) | Minimum discharge (cfs) |
|---|---|---|---|
| January | 513 | 1,710 | 274 |
| February | 446 | 1,360 | 239 |
| March | 681 | 1,860 | 208 |
| April | 571 | 1,110 | 347 |
| May | 781 | 3,850 | 309 |
| June | 184 | 280 | 134 |
| July | 121 | 145 | 106 |
| August | 107 | 148 | 83 |
| September | 105 | 202 | 80 |

The East Fork of the Black River and tributary streams above the site of the proposed dam drain an area of 88 square miles. Similarity between the drainage area above Annapolis gage and above the proposed dam site makes it reasonable to assume flows at the two sites are in the same proportion as the drainage area (18.2%), except in times of extreme high or low flows. A comparison of the flows recordded on the Lesterville gage from January 1, 1960, through September 30, 1960, with the flows recorded on the Annapolis gage during the same period supports this assumption.

Application of the percentage (18.2%) to the average flow at Annapolis (582 cubic feet per second) results in an average flow at the site of the proposed dam of 105 cubic feet per second. Further applications of the percentage to flows at Annapolis show that in the 18 years of record the flows at the site of the proposed dam:

(1) have equaled or exceeded 50 cubic feet per second approximately 50 per cent of the time;

(2) have exceeded 2,000 cubic feet per second less than one-half of one per cent of the time; and

(3) have exceeded 7,000 cubic feet per second on three occasions.

The U.S.G.S. maintains a stream gaging station at Leeper, Missouri, river mile 251 above the mouth of the Black River. The station measures the discharge from a drainage area of 957 square miles. The average discharge [78] over a 36-year period ending September 30, 1957, was 980 cubic feet per second.

The U.S.G.S. maintains a stream gaging station at Poplar Bluff, Missouri, at river mile 211.2 above the mouth of the Black River. Datum of the gage is 317.38 feet above mean sea level and the gage measures the discharge from a drainage area of 1,245 square miles. The average discharge over a 19-year period ending September 30, 1957, was 1,308 cubic feet per second. Minimum gage height has been 1.29 feet, November 6, 1953, and minimum observed flow was 236 cubic feet per second on August 12, 1944.

## (V) NAVIGATION

Diligent search has not disclosed evidentiary facts showing present or past navigation on, or navigable capacity of, the East Fork of the Black River above, at or below the site of the proposed dam, or showing that there have been any efforts, recommendations or proposals to improve the East Fork to make it suitable for navigation.

There is documentary evidence showing that the Black River is navigable from a point at the mouth of the East Fork, four miles below the site of the proposed dam, to the mouth of said Black River. House of Representatives Document No. 102, 73rd Congress, 1st Session, notes on Appendix 1—Sheet No. 7, shows a Corps of Engineers' determination that "the head of navigation for floating ties and timber" of the Black River is at or near the mouth of the East Fork. This determination was made in the engineering studies that preceded the construction of Clearwater Dam.

In a publication, entitled "State of Missouri", edited by Walter Williams in 1904, it is stated at page 494: "Mill centers are at Lesterville. * * * Railroad ties are floated down Black River; within the year [1902] one tie drive represented 650,000 railroad ties" [Clarification added].

A publication, entitled "Three Ozark Streams, Log of the Moccasin and 'Wilma", by Ward Allison Dorrance, 1937, describes a float trip down the Black River in a flat bottomed boat [Moccasin], 28 feet long and two and one [79] half feet wide at its widest point. The trip commenced at or near the mouth of the East Fork. It is stated at page 2: "Behind us the east fork of the river (too difficult for navigation) flows through steep canyons. * * * The hillmen have named them 'shut-ins'." (Parenthetical phrase by the author).

The Clearwater Dam flood control project on the Black River at river mile 275.4 was authorized by the Flood Control Act of June 28, 1938; construction of the dam was completed by the Corps of Engineers in 1951.

Centerville, Missouri, located on the West Fork of the Black River, about seven air-miles west and upstream from the confluence of the East Fork with the main stem of the Black River (composed of the combined Middle and West forks), was a lumbering center and it appears that water-borne traffic may have gone down the West Fork, past the mouth of the East Fork, and then down the Black River to Poplar Bluff, Missouri, and perhaps beyond.

## (VI) EFFECTS OF CONSTRUCTION AND OPERATION OF THE PROPOSED PLANT

The proposed dam across the East Fork of the Black River will create the lower pool of the pumped-storage project, which will have surface areas of 395 acres at 750 feet above mean sea level and 200 acres at 734 feet above mean sea level. The dam will impound approximately 6,350 acre feet of water of which 4,350 acre feet will be used in the pumping and generating cycles which constitute the operation of the project.

If during the impoundage of the lower pool, the flow into the lower pool from the streams above were 105 cubic feet per second (the calculated average flow) and the flow in the Black River at the Annapolis gauge were 582 cubic feet per second (the historical average flow), and 50 cubic feet per second were retained (the remainder allowed to pass through or over the dam and on downstream), then said pool would be filled in approximately 63 days and the stage of the Black River at the Annapolis gage during such period would be reduced by 0.1 feet. If under the same flow conditions as described above, all of the [80] flow into the lower pool from the streams above were retained, then said pool would be filled in less than 32 days and the stage of the Black River at the Annapolis gage during such period would be reduced by 0.2 feet. If during impoundage a high flow should happen to occur, the lower pool could be filled in a matter of hours. Company contemplates only one impoundage, 6,350 acre feet, and after said impoundage has been completed, contemplates discharging through or over the dam an amount of water equal to the inflow into the lower pool from the streams above. There will be no alternating, retaining and releasing of the flow of the stream, as in the case of the usual storage-type hydroelectric facility.

A controllable sluice will be installed in the proposed dam capable of discharging downstream approximately 2,000 cubic feet per second when the lower pool is at its lowest draw-down elevation, 734 feet above mean sea level, and capable of discharging downstream approximately 2,800 cubic feet per second when said pool is at 750 feet above mean sea level.

In normal operation, as contemplated by Company, a normal condition of a full upper pool (4,350 acre feet) and a lower pool at its lowest draw-down elevation (734 feet above mean sea level) will be maintained except when the plant is generating, pumping, or idle after generation is completed, waiting for available energy so that pumping can begin. When the lower pool is at the 734 elevation there will be sufficient storage capacity in the lower pool to absorb, and not pass downstream, all of the water that can be stored in the upper pool. When the lower pool is at the 734 elevation flows into the lower pool from the streams above up to 2,000 cubic feet per second could be discharged through the dam and hence downstream. When the lower pool is at 750 feet above mean sea level flow into the lower pool from the streams above up to approximately 2,800 cubic feet per second could be discharged through the dam and any inflow in excess of said 2,800 cubic feet per second would flow over the free crest of the dam and hence downstream. In the above described situations there would be no increase or decrease in the natural stage and flow below the dam attributable to the existence or operation of the project. [81] During a generating cycle at a rate of 350 megawatts, the nominal rated capacity of the plant, an average of approximately 6,800 cubic feet per second from the upper pool will be discharged into the lower pool through the tailrace at the upper end of the lower pool. If, at the beginning of such a generating cycle, provided the inflow is 2,800 cubic feet per second or less and the elevation of the lower pool is 734 feet above mean sea level and the sluice in the dam is operating normally, there will be sufficient storage capacity in the lower pool to absorb all of the water released into said pool from the upper pool, and when so operated there will be no "power waves", or similar hydroelectric phenomena, below the dam.

It is possible that the lower pool will be at 750 feet above mean sea level, or higher, when a generating cycle begins. To cause the lower pool to be at such elevation when a generating cycle is started, it will be necessary: (1) that there be a flow into the lower pool from the streams above in excess of the capacity of the sluice in the dam for a period sufficient to cause 4,350 acre feet or more to be retained; or (2) that there be a mechanical failure or malfunction in the operation of the sluice in the dam such that the inflow into the lower pool from the streams above could not be passed through said sluice and on downstream; or (3) that Company vary from its stated intention to maintain the lower pool at 734 feet above mean sea level; or (4) that there be a combination of the above mentioned.

To present the situation which would result in an extreme increase in stage and flow stand below the mouth of the East Fork attributable to the existence and operation of the project, it must be assumed that simultaneously: the upper pool is full (4,350 acre feet); one or more of the conditions described in the preceding paragraph has caused the lower pool to be full (750 feet above mean sea level); the natural flow in the East Fork is 105 cubic feet per second; the natural flow in the Black River at the Annapolis gage is 582 cubic feet per second; the sluice in the dam is closed and not operated; and a generating cycle at a rate of 350 megawatts (average turbine discharge [82] 6,800 cubic feet per second) is started and continues until all the water is withdrawn from the upper pool.

If the above assumed facts were to occur simultaneously, the following would result:

> (1) The level of the lower pool would be increased by 3.3 feet, to 753.3 feet above mean sea level, at which point the discharge over the free crest of the dam would equal substantially the total of the turbine discharge and the inflow into the lower pool from the streams above. During the period of generation, 1,200 acre feet of the 4,350 acre feet in the upper pool, would be stored in the lower pool and 3,150 of said 4,350 acre feet would pass over the dam and downstream.
>
> (2) The combined turbine discharge and natural flow would flow over the free crest of the dam for eight hours, after which the amount of water in the upper pool would be exhausted. During said eight hour period the stage of the East Fork of the Black River immediately below the dam would be increased approximately 7.0 feet, with a maximum rate of rise of 2.8 feet per hour.
>
> (3) Between the dam and the Lesterville gage approximately 700 acre feet would be absorbed in valley storage with a resultant increase in stage of approximately

5.7 feet at the Lesterville gage, cresting about nine hours after the start of the generating cycle. Because the eight hour generating cycle would be completed, the stage would then gradually subside to the natural stage.

(4) Between the Lesterville gage and the Annapolis gage, approximately 2,100 acre feet of valley storage would operate to reduce the increase in stage at the Annapolis gage from the 5.7 feet experienced at the Lesterville gage to 3.4 feet, cresting 14½ hours after the start of the generating cycle with a maximum rate of rise of approximately 0.6 foot per hour. As at the Lesterville gage, the stage would subside gradually to the natural stage after the crest. On numerous occasions, natural conditions have caused both greater rates of rise and greater increases in stage in equal periods of time.

[83] (5) Corresponding peak increases in flow attributable to the existence and operation of the plant would be: (a) 7,000 cubic feet per second immediately below the dam; (b) 6,700 cubic feet per second at the Lesterville gage; and (c) 3,600 cubic feet per second at the Annapolis gage. As in the cases of increases in stage, the peak flow at the Lesterville gage and at the Annapolis gage would be reached after the generating cycle at the plant had been completed and the flow would subside gradually to the natural flow.

It is possible, under the conditions described above, to shift from generating to pumping. In such a situation, the units would withdraw 5,000 cubic feet per second from the lower pool, rather than discharge 6,800 cubic feet per second. This would act to shut off all of the flow in the East Fork of the Black River below the dam and several hours later would cause a reduction in natural stage at the Annapolis gage of 0.2 feet.

It is possible to cause a reduction in stage if a pumping cycle were started in a situation similar to the situation presented in a letter, with enclosures, dated April 12, 1960, from Company to the Federal Power Commission, in which operation of the plant on top of the flood of January 1949 was analyzed (see Item 7 of the documents listed under Part I hereof). Under the circumstances there presented, the generation cycle, on top of the flood flow, could cause an increase in stage at the Annapolis gage of approximately one foot, occurring 12½ hours after generation started. Pumping immediately after completion of such generating cycle could cause a reduction in natural flow below the proposed dam and could cause a reduction in stage of .35 feet at the Annapolis gage, occurring 8½ hours after pumping started.

### (VII) FEDERAL LANDS OR RESERVATIONS

The proposed project will be located solely on privately owned lands, and the transmission line leading therefrom will be located on private right of ways except in those instances where said right of way crosses or occupies State and County road or highway right of way. No State or Federal lands or reservations will be occupied or [84] flooded by this project or its transmission facilities (except for occupancy of State and County road or highway rights of way as above indicated). However, parts of Clark National Forest, proclaimed September 11, 1939 (4 F. R. 3908), are located northeast and northwest of the proposed Taum Sauk Plant. As of September 11, 1939, the area included within the Clark National Forest is estimated at approximately 3,000 square miles of which about 23 square miles are within the drainage area of the East Fork of the Black River and upstream from the proposed plant.

### (VIII) OTHER FACTUAL MATTERS

Company operates an interconnected transmission and distribution system in the three states of Missouri, Illinois and Iowa, Company also owns generating plants in each of the three states, which plants are connected with the interconnected transmission system. The proposed Taum Sauk Plant will be similarly connected. At the present time, there are transfers of electric energy on Company's system among the three states. Company sells small amounts of electric power and energy at wholesale to other electric systems in two of the three states, including Iowa Electric Light & Power Company (Iowa), Arkansas-Missouri Power Company and Missouri Utilities Company (Missouri), and other systems. Electric power and energy generated by the proposed plant will be utilized in Missouri and will be transmitted to and utilized in Illinois, and possibly Iowa.

Company has entered into an agreement with the Missouri Conservation Commission relative to the flow in the East Fork of the Black River below the proposed dam, which agreement is described in a letter, dated September 19, 1960, from Company to the Federal Power Commission (see Item 13 of the documents listed under Part I hereof).

Company does not hold, nor has it plans to acquire, title or other water rights in and to the real property riparian to the East Fork of the Black River located above the head of the proposed lower pool and downstream from the site of the proposed dam.

[85] It Is Stipulated and Agreed that the foregoing is made this 21st day of December, 1960, with the understanding that the Stipulation may be received in evidence at any hearing on this matter.

FEDERAL POWER COMMISSION,
STAFF COUNSEL,
By JOSEPH B. HOBBS,
*Attorney,*
UNION ELECTRIC COMPANY,
By DUANE A. PATTERSON,
*Attorney,*
*Union Electric Company, 315 North Twelfth Boulevard, St. Louis 1, Missouri.*

---

## Before the Federal Power Commission

*Union Electric Company Docket No. E–6927*

*Decision of Presiding Examiner—Issued December 19, 1961 Upon a Declaration of Intention*

### *Appearances*

For Union Electric Company: Duane Allen Patterson, St. Louis, Missouri.

For the Staff of the Federal Power Commission: Joseph B. Hobbs, Washington, D.C.

BINDER, *Presiding Examiner:* This proceeding requires a determination whether a license is required under the Federal Power Act (Act) to construct, operate, and maintain a pumped-storage hydroelectric project known as the Taum Sauk Project to be located on the East Fork of the Black River at its confluence with Taum Sauk Creek, in Reynolds County, Missouri.

[86] Union Electric Company (Union or Declarant) which proposes to construct, operate, and maintain such project contends that the Federal Power Commission (Commission or FPC) has no jurisdiction in the matter, that the granting of an FPC license is not required, and that the Taum Sauk Project may be constructed, operated and maintained upon compliance with State laws alone. In this connection Union filed a declaration of intention pursuant to Section 23(b) of the Act primarily for the purpose of obtaining an order holding that this Commission is without licensing jurisdiction in this matter. However, in view of the importance of the project to Union and its customers, Union filed with the Commission an application for a license authorizing the construction, operation, and maintenance of the project. The determination to be made in the licensing proceeding is not at issue here. This proceeding is limited to a determination whether the FPC has the power and authority to require a license authorizing the construction, operation and maintenance of the Taum Sauk Plant.

The project to be constructed will be a high-head pumped storage hydroelectric project. The proposed project works will consist of a concrete gravity dam approximately 60 feet high above its foundations and approximately 450 feet long, including 350 feet of overflow spillway with free crest at elevation 750 feet above mean sea level, U.S.G.S. datum, creating the "lower pool" with a total surface area of approximately 370 acres in the East Fork of the Black River and Taum Sauk Creek; the water impounded in the lower pool (consisting of approximately 6,000 acre-feet of which approximately 4,000 acre-feet would lie between elevations 735 and 750) being pumped against a dynamic head of approximately 811 feet into an energy storage reservoir designated the "upper pool"; the "upper pool," to be constructed on top of an adjoining mountain, to have a surface area of approximately 32 acres, and to impound approximately 4,000 acre-feet between elevations 1515 and 1625 within a rock-fill concrete-faced dike approximately 110 feet high; a 6,400 foot-long pressure tunnel and conduit, connecting the upper pool with a pumping and generating station on an open channel to the lower pool; two reversible units to pump water at night to the upper [87] pool and to serve as generators during the day, each unit when generating to have a rated capacity of 175,000 kilowatts; two 138,000 volt transmission lines connecting the proposed installation with the Union Electric Company system.

The proposed project will be operated for the purpose of carrying peak loads on Declarant's system, for providing emergency generating capacity, and as otherwise appropriate to the operation of its system.

The facts with regard to the project works may be described generally as follows:

Initially, when the project plant is first employed in the generation of electric energy it is contemplated that the upper pool will have in storage up to a maximum of 4,350 acre feet. The flow of water during generation of electricity from the upper pool to the lower pool will vary depending upon the amount of water contained in the upper pool. For example, when generating at a rate of 350,000 kilowatts, the rate of flow of water from the upper pool to the lower pool will vary depending on the amount of water in the upper pool. The lower the level of water in the upper pool the greater the rate of flow from the upper pool to the lower pool. For example, when the water in the upper pool is at a net head of 835 feet the flow from the upper pool to the lower pool is estimated to be at the rate of 5800 cubic feet per second, and when the net head is 750 feet the rate of flow from the upper pool to the lower pool is estimated to be at 6600 cubic feet per second.

It was also estimated that the average turbine discharge while generating would average as much as 6800 cubic feet per second.

When the upper pool is filled there would be enough water stored to permit generation at the rate of 350,000 kilowatts to produce a total of approximately 2,750,000 kilowatt hours, corresponding to a full load operation of 350,000 kilowatts for about eight hours.

The operating cycle of the project works when pumping may be described as follows: When the project plant begins to pump water from the lower pool to the upper pool, the two units operating together at 200 revolutions [88] per minute as a motor driven pump will deliver at approximately 4900 cubic feet per second. Later when the upper pool is nearly filled, the rate of flow will decrease to about 3750 cubic feet per second. It would take about 11 hours to fill the upper pool to 4350 acre feet. The power absorbed by the motors varies from approximately 404,000 kilowatts when the upper reservoir is low to about 342,000 kilowatts when the reservoir is full, and at an average head about 392,000 kilowatts.

The dam for the lower pool will include an overflow spillway about 350 feet long with free crest at elevation 750 feet above mean sea level. The plans provide for a maximum water surface at the dam for the lower pool to be 763 feet above mean sea level, at which level the spillway would have a capacity to pass a discharge of 70,000 cubic feet per second. An increase of one foot in the water surface at the spillway would result in a discharge capacity in the order of 80,000 cubic feet per second.

Union in the normal operation of the pool proposes to regulate the outflow through the dam when the water surface is at 750 feet above mean sea level, or less, by means of sluice gates capable of discharging from 2,000 to 2,800 cubic feet per second. Union intends to regulate the outflow through the dam to correspond to the inflow to the lower pool from the feeding streams by means of the sluice gates and appropriate gauging stations to record inflows and outflows. The sluice gates would control the flow through an outlet in the dam to be located on a center line at elevation 715 feet above mean sea level.

After Union filed its declaration of intention the Staff of the Commission made an investigation and concluded that the construction, operation, and maintenance of the proposed project would affect the interests of interstate and foreign commerce, i.e., the Staff concluded that the licensing provisions of the Act were applicable.[1] Appalachian requested a hearing and pursuant to Commission order such hearing was held on January 31, 1961.

On December 21, 1960, Union and the Staff executed a "Stipulation of Facts" which was made a part of the [89] record and such stipulation stated, among other things, that "there are no unresolved factual matters, but only unresolved and disputed questions of law." In addition, extensive evidentiary material was received in evidence.

Despite the language above quoted, it appears from the stipulation, read as a whole, and the statements of counsel for Union and Staff counsel made during the hearing that there exists a substantial difference between the parties as to the meaning and effect reasonably attributable to the facts on which an agreement was reached. The Staff and Union disagree regarding the effect which the proposed hydroelectric development will have or is reasonably capable of having upon the navigability of the Black River.

The Black River is downstream from the confluence of Taum Creek and the East Fork of the Black River and is part of the navigable waters of the United States, being navigable from a point at the mouth of the East Fork four miles below the site of the proposed dam, to the mouth of the Black River.[2]

The position of Union on the law [3] is to the effect that before the licensing provisions under the Act become applicable in this proceeding the Staff of the Commission must prove that the construction, maintenance, and operation of the project works on the navigability of the Black River will be "both substantial and inevitable."

---

[1] See Section 4(e) and 23(b) of the Federal Power Act.

[2] The "Stipulation of Facts" sets forth at page 11 that:

"There is a documentary evidence showing that the Black River is navigable from a point at the mouth of the East Fork, four miles below the site of the proposed dam, to the mouth of said Black River. House of Representatives Document No. 102, 73rd Congress, 1st Session, notes on Appendix 1—Sheet No. 7, shows a Corps of Engineers' determination that 'the head of navigation for floating ties and timber' of the Black River is at or near the mouth of the East Fork. This determination was made in the engineering studies that preceded the construction of Clearwater Dam." There was no evidence of any facts to the contrary of the above quoted statements contained in the stipulation, or in the documentary material received in evidence. In the circumstances the only reasonable conclusion as to navigability is that set forth in the text hereinabove.

[3] See, for example, pp. 6 and 10 of Union's brief.

The cases cited by Union do not contain any definition of the term "substantial" which could be said to be helpful in evaluating the facts agreed upon in this proceeding. [90] Specifically, the cases cited do not spell out the degree to which navigability must be affected to be considered "substantial." A reading of the cases cited by Union[4] illustrates that the term "substantial" as used by Union has been interpreted by the courts or the Commission to mean an effect which is "serious", "appreciable", "measurable", or "pronounced", and not an effect which is merely "de minimis". The facts in the cases cited by Union demonstrate that despite the adjectives which have been quoted that what is meant by the courts as being "substantial" insofar as the effect on navigability is concerned is in large part dependent upon the evaluation of specific sets of circumstances by the persons authorized by law to decide the cases, i.e., the regulatory agencies or the courts. This evaluation of the effect of a particular project works as being "substantial" or "appreciable" or the employment of some other adjective in describing the effect on navigability is largely a matter of judgment in particular circumstances and the circumstances of a past project are seldom so similar to a project under consideration as to be precedential.

In this case Union's position is that the construction, operation, and maintenance of the Taum Sauk project works, is capable of having only an insignificant or de minimis effect upon the navigability of the Black River.

The Staff's position, on the other hand, is that the facts agreed upon show that the project works are capable in certain circumstances of having a "measurable" or "pronounced" effect. The Staff's position is that the stipulated facts and the evidentiary support found in the exhibits received reflect a capability that the project works will have a substantial effect upon the navigability of the Black River and that therefore the license provisions are applicable. It will be observed, in this connection, that the test of jurisdiction invoked by the Staff is markedly different from that sought to be applied by Union. Union's position goes in an opposite direction to that advocated by the Staff as the appropriate test. It is Union's position [91] that the "capability" test advocated by the Staff is not the law. Union urges on the contrary that to establish licensing jurisdiction it must be shown that the construction, operation, and maintenance of the project works will have an "inevitable" effect on the navigability of the Black River. As Union employs the term "inevitable" it means that Union considers that under the law the Staff must show that the construction, operation, and maintenance of the Taum Sauk project works will necessarily or will be practically certain to result in affecting the navigability of the Black River.

---

[4] E.g., Presque Isle County Electric Cooperative Association, 8 FPC 687, 688; Niagara Mohawk Power Corp., 10 FPC 715, 716; Citizens Utilities, 21 FPC 233, 241; Clam River Dam Company, 2 FPC 953; Brazos River Conservation and Reclamation District.

To support its claim that before the licensing provisions become applicable it is requisite that the Staff show that the operation of the project works will have an "inevitable" effect on navigation on the navigable waters of the United States, Union relied heavily upon opinions expressed in *United States* v. *Appalachian Electric Power Co.*, 23 F. Supp. 83, 105, and *United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769, 790. In connection with the opinion of the Court of Appeals in the Appalachian case Union pointed out that when the Supreme Court [5] reversed such court it held that the New River at the dam site was navigable and further held that the Federal Power Commission could impose license conditions having no relationship to navigation when the project works were to be constructed on navigable waters of the United States. Union contends, however, that the opinion of the Court of Appeals was not reversed by the Supreme Court insofar as such opinion sets forth standards by which it may be determined whether the license provisions under the Act are applicable to hydroelectric project works which are not situated on navigable waters of the United States, as is the instant case.

---

[5] 311 U.S. 377.

The distinction sought by Union to be made between the present proceeding and the determination of the Supreme Court in the Appalachian case is that the project works in Appalachian were found by the Supreme Court to be on navigable waters of the United States whereas in this case the agreed upon facts are that the dam site is not on navigable waters. Based upon this distinction, [92] Union contends that the Supreme Court decision in Appalachian was not a reversal of the principles adverted to in the Court of Appeals opinion where the Court considered that the dam site was not on navigable waters. Union contends that in the latter situation the Court of Appeals decision in Appalachian is still good law, and established a precedent which should be applied here.

It is true that in this case it is clear that the project works will not be on navigable waters of the United States. Union contends therefore that a factual showing that the construction and operation of the project works are not on navigable water of the United States but will only have the capability of affecting the navigability in a stretch of water downstream which concededly is part of the navigable waters of the United States is not an adequate basis to establish that the Commission's licensing authority under the Federal Power Act is applicable.

The Staff has cited a number of recent cases to support its position as to the appropriate basis on which to test jurisdictional authority, and *Citizens Utilities Co.* v. *Federal Power Commission*, 279 F. 2d 1 (1960), and *Carolina Aluminum Co.*, 19 FPC 704 (1958), cited by the Staff appear to be directly in point. These cases hold that where a showing is made that the construction, operation, and maintenance of hydroelectric project works located on nonnavigable waters is capable of having a measurable effect on navigable waters of the United States downstream that then the licensing provisions of the Act are applicable.

In the *Citizens Utilities* case, the Court of Appeals for the Second Circuit held that the Commission had licensing jurisdiction where private hydroelectric dams were constructed across a river at a point where there was a question whether the river was navigable but where the operation of the dams was capable of affecting temporarily the flow of water at a lower point in the stream which was navigable and did so in the ordinary operations of such dams.[6]

[93] Accordingly, it is clear that where dams are proposed to be constructed even on a non-navigable stream, which are capable in their ordinary operation of affecting measurably the flow of water at a lower point of the river which is navigable the law is that the Commission's jurisdiction attaches and the licensing provisions are applicable.

Further, it appears that the holding in the Citizen's case is inconsistent with the rigid test of "inevitability" to establish jurisdiction which would be imposed by Union.

In *Carolina Aluminum Company,* 19 F.P.C. 704, the company proposed a dam on non-navigable water but it was found as fact that its operation was capable of having an effect on navigability at points downstream in navigable waters of the United States. The Commission held that the project works were subject to the licensing provisions under the Act. In this connection, the Commission adopted language in the decision of the presiding examiner reading as follows:

> "In determining the jurisdiction of this Commission based upon the downstream effect of any hydroelectric development on navigable capacity, such jurisdiction does not depend upon the manner in which a hydroelectric development has been operated in the past or is proposed to be operated in the future but upon the effect which such hydroelectric development *is capable of having upon navigable capacity at points downstream.* Moreover, each hydroelectric development may, for the purpose of determining the question of jurisdiction aris-

---

[6] The Court noted in this case that the Commission's presiding examiner had found that the Clyde River was not "navigable water of the United States" except for the first 4800 feet from its mouth; that the Commission had reversed the examiner on this point and held that the river was navigable at the dam site; and that the company was required to obtain a license. The Court of Appeals, apparently did not find it necessary to resolve the question as to the navigability of the river at the dam site holding that the licensing provisions of the Act were applicable because of the effect of the project works on the navigable waters downstream apparently without regard to whether the waters at the dam site were or were not navigable.

> ing from downstream effect, be considered and treated as if no other hydroelectric development were located within the stream either above or below the development, which is the subject of the jurisdictional inquiry." [Emphasis supplied.]

It appears that if a proposed hydroelectric development on a non-navigable stream is capable of having a measurable effect on navigable capacity at points downstream in [94] waters of the United States which are navigable that then the proposed project works are subject to the licensing provisions under the Act, and the law does not require a showing that the effect on navigability is inevitable. For example, the fact that a stream has acted in a specific way numerous times in the past may establish the probability that it will act similarly again in the future and will surely establish that it has the capability of acting that way in the future. It would not necessarily establish, however, that it would do so inevitably. To require the establishment of an "inevitable" effect would be unrealistic.

As we have noted the Taum Sauk project works will involve, among other things, the construction of two pools, one of which has been referred to as the "lower pool" and the other the "upper pool". In general, it is contemplated that at night or during periods of lesser consumer demand for electric power, the company will pump water from the lower pool to the upper pool and that in the daytime or other periods when more power is required for carrying peak loads on Union's system, the water in the upper pool would in the generation of electricity flow down to the lower pool. It is expected that the water in the upper pool will be allowed to flow back through a long pressure tunnel or conduit (6400 feet long) into the lower pool as part of a daily cycle, i.e., there would be pumping during the off-peak hours using available steam-generated electric energy and releasing the stored energy during the peak hours.

The facilities are different from the type of hydroelectric facilities which use the potential energy in natural flows of the stream to generate electric energy and which alternately store and release the natural flows from a stream. As Union contemplates the operation water will be impounded only one time in the lower pool, causing a temporary reduction in the downstream stage and thereafter on a daily cycle the water in the lower pool will be pumped up to the upper pool and later released.

After the impounding of the water in the lower pool has been completed, it is expected by Union that water will be discharged through or over the dam in amounts [95] equal to the inflow into the lower pool from the streams above and that, therefore, the streams below the project will not be affected by the existence or operation of the plant. On this basis it is claimed that there will be no effect on the navigability of the Black River.

The Staff, on the other hand, claims that when physical conditions are considered in connection with the construction, maintenance, and operation of the project works, particularly in regard to the drainage conditions in the Upper Black River Basin and when the water flows which have been measured over past years are considered the only reasonable conclusion to be reached is that the project works have the capability of affecting the navigability of the Black River. The facts relating to the size, physical characteristics and operation of the project works have been described hereinabove.

Based upon the conceded facts regarding the drainage in the upper Black River Basin and readings made at four stream gaging stations[7] located below the site of the dam for the lower pool, mathematical calculations were made, which were not challenged, from which a flow duration curve was drawn indicating that the flows at the proposed dam of the lower pool have:

---

[7] The four stream gaging stations are located as follows: (1) a stream gaging station at Lesterville on the East Fork of the Black River, 3.3 river miles downstream from the site of the dam for the lower pool which measures the flow from a drainage area of 34.5 square miles; (2) a stream gaging-station called Annapolis on the Black River 11 miles below the mouth of East Fork which measures the flow from a drainage area of 484 square miles of the combined three forks of the Black River and of its main stem below the mouth of the East Fork; (3) a stream gaging station at Leeper, Missouri, about 37 miles below the mouth of the East Fork of Black River measuring the discharge from drainage area of 957 square miles; and (4) a stream gaging station 40 miles from the dam of the river at Poplar Bluff, Missouri measuring the discharge from a drainage area of 1245 square miles.

(1) equaled or exceeded 50 cubic feet per second approximately 50 percent of the time;

(2) equaled or exceeded 100 cubic feet per second about 25 percent of the time;

(3) equaled or exceeded 200 cubic feet per second about 10 percent of the time;

(4) have exceeded 2,000 cubic feet per second less than one-half of one percent of the time; and

[96] (5) have exceeded 7,000 cubic feet per second on three occasions.

These varying flow conditions when considered together with the physical character of the project works are capable of affecting navigability on the Black River in differing degrees dependent in large part upon the flow conditions at the times being considered. In this connection, the Staff has given consideration to five situations where the proposed project works would be capable of affecting the navigability of the Black River, *to wit,* (a) the effect on navigable capacity during the filling period; (b) the effect of the navigable capacity during high flow periods; (c) the effect on navigable capacity during malfunctions of facilities; (d) the effect on navigable capacity during emergency operation of the Taum Sauk plant; and (e) the effect on navigable capacity during average flows and normal operations of the Taum Sauk project works.

Three of these situations involve flow conditions such as have actually existed in the comparatively recent past. A fourth situation involves the possibility of malfunctions of facilities, and the fifth situation involves the problem of emergency operation of the project works.

The first set of circumstances considered are those relating to the effect on navigable capacity during the filling period. The company has considered that the filling period would occur only once in the operation of the project. The Staff has pointed out that the lower pool will be filled not only during the initial operation of the project but also that there will be an emptying of the lower pool regularly during the normal operation of the project. The effect on the navigable water during the normal cycle through the pumping of the water from the lower pool and the return of this water during periods of generation of electricity will be dependent upon flow conditions at the time, and these flow conditions are unpredictable specifically as to time or volume years in advance but the records maintained in the past show a wide variance in flow conditions at various times. Moreover, there would be normally the problem of regular inspection and maintenance for repair of the project works which could require the emptying of either or both of the pools involved.

[97]. It is clear enough that the lower pool will initially hold back water from the East Fork of the Black River and that this will reduce the natural flow below the dam, thus affecting the storage and flow of the East Fork of the Black River. The degree to which this operation will affect the flow below the dam and the navigability in the Black River is dependent upon the amount of inflow to the lower pool from the East Fork and the amount of the total flow retained for storage. As has been pointed out the flows in the proposed dam of the lower pool have equalled or exceeded 100 cubic feet per second about one quarter of the time. Dependent upon how the operations were conducted, it appears that if the flow during the impoundage of the lower pool from the streams above the dam were at the rate of 105 cubic feet per second (as they are about one-fourth of the time) and if 50 cubic feet per second were stored, the lower pool would be filled in approximately 63 days. In the latter case, the stage or the water surface level of the Black River at the Annapolis gage during such circumstances would be reduced by about a tenth of a foot and the water surface level on the East Fork about 3.7 miles below the dam site would be reduced about one foot.

If the flow were at 105 cubic feet per second, and all the flow were retained the pool would be filled in somewhat less than 32 days and the stage of the Black River would be reduced by about two-tenths of a foot and the stage on the East Fork about 3.7 miles below the dam site would be reduced by about 2 feet.

If there were higher flows during impoundage, the pool could be filled very quickly.

While the flows in the proposed dam of the lower pool have exceeded 2,000 cubic feet per second, less than one-half of one percent of the time the fact is that such flows have occurred in the past, and there is no good reason to assume that such flows will not occur again. If the flow were 2,000 cubic feet per second and one-half of that were stored, the surface level in the Annapolis gage would be reduced about 0.5 feet and the stage 3.7 miles below the dam on the East Fork would be reduced by 0.8 feet.

[98] There have been a number of occasions in comparatively recent years when high-flow conditions have been experienced. The record shows that there were high-flow conditions experienced during June 6–10, 1945, January 23–24, 1949, and May 9–10, 1960. Had the project works been in existence in the 1945 flood period the natural maximum stage below the dam of the upper pool would be reduced by about 0.3 feet, and the maximum peak flow past the dam would be reduced from 33,200 to 30,800 cubic feet per second.

In the high flow period of January 1949, the generating cycle would have added to the natural peak flow past the dam of the lower pool by increasing it from 17,600 cubic feet per second to 21,800 cubic feet per second and the dam at the lower pool would reduce the natural stage below the dam by 0.2 feet to 0.4 with no plant operation.

For high-flows, such as that of May 9–10, 1950, and with operation of the plant, the pumping cycle of itself would reduce the natural stage below the dam of the upper pool by about 0.8 feet, but the generating cycle would increase the stage below the dam above natural stage by about one foot.

During stream flows of 2,800 feet per second or less into the lower pool and for the normal cycles of generation and pumping for the project works there would be no increase or decrease in the natural stage and flow below the project works, assuming no emergency operations, and no malfunctions of facilities. If an electric power emergency were to occur requiring a rapid change from a pumping cycle at the rate of about 5,000 cubic feet per second and the lower pool were about full there would be an increase of about 9,000 cubic feet per second in the flow below the dam.

As we have noted hereinabove when the two motor driven pumps to bring water to the upper pool are operating together at 200 revolutions per minute they will deliver about 5,000 cubic feet per second to the upper pool and the average turbine discharge while generating may average as much as 6,800 cubic feet per second. The change from pumping to generation in such circumstances would increase the stages as follows: 2.4 feet below the [99] dam, 1.6 feet at Lesterville and about one foot at Annapolis gage.

It is clear that operation during emergency conditions has the capability to affect navigability on the Black River.

It cannot reasonably be said that the possibility of malfunction or mechanical failure does not exist in this project. There certainly exists the possibility of human or mechanical failure. In this project the possibility of such failure exists through the improper operation of stream gages, failure of the stream flow facilities to record correctly the inflows and outflows or to transmit flow information to the control points, clogging of the intake to sluiceway works, or failure of facilities. If there were malfunction during periods of flood and the generators were employed it would affect navigability severely, particularly because the effect of generation would be to add to the unusual accretion of water.

Under conditions where the natural flows were 105 cubic feet per second in the East Fork and 582 cubic feet per second in the Annapolis River at the Annapolis gage and if it be assumed that the lower pool were full to elevation of 750 feet above mean sea level, the sluice in the dam were closed and not operated, and a generating cycle were started and continued until all the water were withdrawn from the upper pool the result would be that the stage of the East Fork immediately below the dam would be increased by 7.0 feet; the stage at the Lesterville gage would be increased by 5.7 feet; the stage at the Annapolis gage would be 3.4 feet.

If under the described conditions there were a reversal from generation to pumping, all of the flow below the dam would be shut off and there would be a reduction at the Annapolis gage of 0.2 feet.

Another possibility, which as the Staff points out, could occur at any time, would be the effect on navigability of incorrect operation of the sluiceway. For example, during the month of August if there were a condition of low flow such as a flow of 5 cubic feet per second into the lower pool and 107 cubic feet per second in the Black [100] River at the Annapolis gage and the Taum Sauk project works were not in operation, the abrupt release of water through the sluiceway could result in the dumping of 2,000 cubic feet per second from the lower pool. This would cause the stage just below the dam to rise about 5.5 feet; the stage at Lesterville would increase about 4.4 feet; and the stage at Annapolis would increase approximately 2.2 feet. The flow conditions described hereinabove have been scientifically determined to have existed in the past. There is no reason to believe that they will not occur again. In fact, ordinary prudence would dictate an opposite conclusion. In addition the possibility of malfunction is always present. The impact of the flow conditions and the construction, operation, and maintenance of the project works upon the navigability of the Black River would vary from a de minimis effect to a substantial effect. Most of the time navigability on the Black River would not be substantially affected but there will be times when it will be affected. The problem to be resolved, however, is not whether the Commission should extend its attention to situations where the effect on navigability is not always substantial or is not continuous but whether under the law navigability will be affected to a measurable degree by the maintenance, construction, and operation of the project works.[8] Here it will be so affected.

An additional issue raised by the Staff is whether Union was required to obtain a license under the Act because the Taum Sauk Project will be constructed, maintained, and operated by Union to supply markets outside the state of Missouri thereby affecting the interests of interstate or foreign commerce. The Staff contends that on this basis alone, a license would be required under the Act.

The sole issue in this case is whether or not Union is required to obtain a license to construct, operate, and maintain the Taum

---

[8] *Cf. Connecticut Co.* v. *F.P.C.*, 324 U. S. 515, 536.

Sauk Project works. That issue has been decided in the affirmative for the reasons which have been set forth hereinabove. It is, therefore, unnecessary and may not be desirable to pass upon the second basis urged by the Staff for requiring Union to obtain a license. [101] Sufficient ground has already been established upon which it must be held that the Commission has jurisdiction and that Union must obtain a license for its Taum Sauk Project works.

In connection with the additional issue raised by the Staff, the "Stipulation of Facts" shows that Union supplies markets outside the state of Missouri and that the operations of the Taum Sauk Project will serve to supply such markets. In substance, the facts contained in the stipulation show that Union operates an interstate electric system, including two hydroelectric stations, seven steam electric stations, transmission lines with voltages of 230 kv, 161 kv, 138 kv, 110 kv, and 69 kv, plus associated substation facilities, and distribution facilities; that it is a member of the Illinois-Missouri Pool, sharing in its operations, obligations and benefits; that it sells electric energy in the states of Missouri, Illinois and Iowa; that it is interconnected with other electric utilities including some which operate outside the State of Missouri; that power flows over transmission lines of Union, from Missouri to Illinois, from Illinois to Missouri, from Iowa to Missouri, from Iowa to Missouri, from Iowa to Illinois and from Illinois to Iowa; that it has been receiving firm capacity and reserves from the Illinois-Missouri Pool; that the Taum Sauk Project will be interconnected via two 138 kv circuits to the Union interstate network; that the Taum Sauk Project works will provide an instantaneous reserve available to pick up load in event of breakdown of other generating equipment connected to the interstate network.

It has been concluded that it is requisite under the law with regard to the effect on navigability that Union obtain a license for the construction, maintenance and operation of its Taum Sauk Project works without regard to the fact that it will supply markets outside the state of Missouri with energy obtained through the operation of the Taum Sauk Project. Accordingly, it is not necessary to pass upon the legal effect insofar as the licensing requirements are concerned because of the supply of electricity which would be transmitted to interstate markets by reason of the construction and operation of the Taum Sauk Project. A showing that the Taum Sauk Project [102] works will have a measurable effect on the navigability of the Black River which is part of the navigable waters of the United States is a sufficient showing to establish that a license must be obtained from the Commission.

### ADDITIONAL FINDINGS AND CONCLUSIONS

Upon consideration of the entire record made in this proceeding, the "Stipulation of Facts", all the evidence adduced, the briefs filed herein, and the matters relevant to a decision herein, the Presiding Examiner finds and concludes in addition to the findings and conclusions hereinabove stated that:

(1) Union Electric Company (Union Electric or Declarant) is a Missouri corporation operating an integrated electric system in the States of Missouri, Illinois and Iowa.

(2) Union Electric filed a declaration of intention pursuant to Section 23(b) of the Federal Power Act announcing its proposal to construct, operate and maintain pumped-storage hydroelectric project works which are referred to as the Taum Sauk Project.

(3) Taum Sauk Project will be located in Reynolds County, Missouri, in or along the East Fork of Black River, about 294 miles above the mouth of Black River and just below the confluence of Taum Sauk Creek with the East Fork.

(4) Taum Sauk Project will be located about 4 miles above the mouth of the East Fork of Black River.

(5) The East Fork of Black River empties into Black River about 289.5 miles above its mouth.

(6) The Black River, from its mouth to its confluence with the East Fork, is a navigable water of the United States.

(7) Taum Sauk Project works will include, among other things, a lower dam forming a lower pool backing water up the East Fork and Taum Sauk Creek, a powerhouse including two 175,000 kilowatt units each having pump-turbine and motor-generator equipment and associated facilities, and an upper pool.

[103] (8) Union Electric has filed application for license and construction is now under way on project works of the Taum Sauk Project, except those which will affect the East Fork at the site of the lower dam.

(9) When the project works generate electric power and energy, water from the upper pool, up to a maximum of 4,350 acre-feet, will be discharged into the lower pool.

(10) When the project works pump water from the lower pool, up to a maximum of 4,350 acre-feet will be lifted to the upper pool.

(11) The dam for the lower pool of the project will have a free crest spillway capable of discharging 70,000 cubic feet per second when the water surface is 763 feet above mean sea level and 80,000 cubic feet per second at water surface elevation of 764 feet above mean sea level.

(12) A sluiceway will be provided in the dam for the lower pool, capable of discharging 2,000 to 2,800 cubic feet per second.

(13) An operating stream gaging station was established at Lesterville, Missouri, in January, 1960, measuring the flow from a drainage area of 94.5 square miles of the East Fork of Black River.

(14) An operating stream gaging station, called Annapolis, was established in 1939 on the Black River about 11 miles below the mouth of East Fork, river mile about 279, measuring the flow from a drainage area of 484 square miles of the combined three forks of Black River and of its main stem below the mouth of the East Fork.

(15) The drainage area of the East Fork at the site of the dam of the lower pool of Taum Sauk Project is 88 square miles.

(16) The average flow of the East Fork of Black River at the site of the dam of the lower pool is about 105 cubic feet per second.

(17) The average flow of the Black River at the Annapolis gage over an 18 year period is 582 cubic feet per second.

[104] (18) Except for high flows and for low flows, the flows of the East Fork of Black River at the dam site for the lower pool of Taum Sauk Project may be estimated with reasonable accuracy by applying the ratio of drainage areas to the measured discharges at the Annapolis gage.

(19) A maximum discharge of 45,400 cubic feet per second at the Annapolis gage occurred on June 8 and 10, 1945.

(20) The maximum discharge at the dam site of the lower pool of the Taum Sauk Project was about 33,200 cubic feet per second during the June 8–10, 1945 flood.

(21) The Federal Clearwater flood control dam is located on the Black River 30 miles downstream from the mouth of the East Fork of Black River.

(22) Some lands above the Taum Sauk Project within the drainage area of the East Fork were acquired as part of Clark National Forest in the interest of flood control and other purposes.

(23) During each and every impoundage of water in the lower pool from streams above, the stage and flow of the East Fork and of the Black River from its confluence with the East Fork downstream to the Annapolis gage and below would be reduced, the amounts depending on the inflow and the percentage thereof retained for storage.

(24) During each and every impoundage of water in the lower pool from streams above, the stage at Lesterville gage would be reduced by 0.8 to 3.7 feet.

(25) During each and every impoundage of water in the lower pool from streams above, the stage at Annapolis gage would be reduced by 0.1 to 0.5 feet, depending on the inflows and the portions retained.

(26) At times of inflows in excess of 2,000 to 2,800 cubic feet per second from streams above into the Taum Sauk lower pool and under the proposed method of oper-

ation of project works, the stage and flow of the East Fork below the dam and of the Black River from its confluence with the East Fork downstream to the Annapolis gage and beyond, would be changed [105] from the stage and flow that would exist under natural conditions, sometimes there being an increase in stage and flow and at other times there being a decrease in stage and flow depending on the operating phase of the Taum Sauk Project works.

(27) At times of inflows of 9,000 cubic feet per second and above, from streams above into the Taum Sauk lower pool, generation at the project works would cause an increase of about 1 foot in stage at the Annapolis gage on the Black River.

(28) Under conditions of the lower pool being full, the sluice closed, and average flow in the East Fork and Black River, a generating cycle at full load for 8 hours at the Taum Sauk Project would cause increase in stages as follows: 7.0 feet below the dam, 5.7 feet at the Lesterville gage, and 3.4 feet at the Annapolis gage.

(29) An abrupt release of water through the Taum Sauk sluiceway during a low flow period, assuming no operation of project works, would cause increase in stages about as follows: 5.5 feet below the dam, 4.4 feet at Lesterville gage and 2.2 feet at Annapolis gage.

(30) An emergency operation of Taum Sauk Project would cause a change in stage and flow of Black River from its confluence with the East Fork and below to Annapolis gage and below if the flows are of large magnitude.

(31) The proposed Taum Sauk Project will be capable of affecting, and will affect the navigable capacity of the Black River downstream from its confluence with the East Fork to the Annapolis gage and beyond, thereby affecting the interests of interstate or foreign commerce.

(32) The proposed Taum Sauk Project will be constructed, operated and maintained for the develop-

ment of power to supply markets not only in Missouri but also in the State of Illinois, thereby affecting the interests of interstate or foreign commerce.

[106]

### ORDER

Wherefore, It Is Ordered, subject to review by the Commission on appeal pursuant to its Rules of Practice and Procedure that Union Electric Company is required to obtain a license for its proposed Taum Sauk Project works, pursuant to the provisions of the Federal Power Act and the Commission's Rules of Practice and Procedure.

Samuel Binder, *Presiding Examiner.*

---

## Before the Federal Power Commission

### *Presiding Examiner's Certification of the Record Accompanying Initial Decision—dated December 19, 1961*

[Title omitted]

To the Secretary:

In accordance with the provisions of Section 1.30 of the Commission's Rules of Practice and Procedure I herewith file with you a copy of the record of the hearing held herein pursuant to the order of the Commission including my report thereon. For that purpose I am transmitting herewith one copy each of the documents described in Section I below:

I—Exhibits numbered and described as follows:

| *Exhibit No.* | *Description* |
|---|---|
| 1 | Declaration of intention filed by Company with the Commission on February 1, 1960, and assigned Docket No. E-6927, DI 212. |
| 2A | Location Map, Exhibit A, filed by Company with the declaration of intention. |
| 2B | River profile, flow duration curve, and flow hydrographs, Exhibit B, filed by Company with the declaration of intention. |
| [107] | |
| 2C | Load curve, pool volume curves and generator output versus turbine discharge curves, Exhibit C, filed by Company with the declaration of intention. |
| 3A | Plot plan, prepared by Sverdrup & Parcel Engineering Company, supplied by Company with the declaration of intention. |
| 3B | Upper reservoir site plan & general design, supplied by Company with the declaration of intention. |

| *Exhibit No.* | *Description* |
|---|---|
| 3C | Water conduit and channel profile and cross sections, supplied by Company with declaration of intention. |
| 3D | Power house site plan, supplied by Company with the declaration of intention. |
| 3E | Power house plans and sections, supplied by Company with declaration of intention. |
| 3F | Lower dam site plan and general design, supplied by Company with declaration of intention. |
| 3G | Access roads and relocated county road, supplied by Company with the declaration of intention. |
| 4A | Letter dated February 24, 1960, from Company to the Commission. |
| 4B | Report and Order of Missouri Public Service Commission, dated February 23, 1960, in case No. 14,390. |
| 4C | Order of the County Court of Reynolds County, Missouri, dated December 21, 1959. |
| 5 | Letter dated March 1, 1960, from the Missouri Public Service Commission to the Federal Power Commission. |
| 6A | Letter dated March 29, 1960, from Company to the Commission. |
| 6B | Curves showing motor input versus pump discharge, supplied by Company with the letter of March 29, 1960. |
| [108] | |
| 6C | Curves showing generator output versus turbine discharge, supplied by Company with the letter of March 29, 1960. |
| 7A | Letter dated April 12, 1960, from Company to the Commission. |
| 7B | Report of Study, Effect of operation on high flows of the East Fork of the Black River, supplied by Company with the letter of April 12, 1960. |
| 8 | License Application filed by Company with the Commission of June 10, 1960, and assigned Project No. 2277. |
| 9A | Resolution adopted at a special meeting of the Board of Directors of Company, held on Friday, December 11, 1959, Exhibit B, filed by Company with the license application. |
| 9B | Statement of nature, extent and ownership of water rights, Exhibit E filed by Company with the license application. |
| 9C | Statement of financial ability to finance project, Exhibit G filed by Company with the license application. |
| 9D | Location map, Exhibit J filed by Company with the license application. |
| 9E | Detail Map—Project Area, Exhibit K filed by Company with the license application. |
| 9F | Lower dam site plan and general design, Exhibit L, Sheet 1, filed by Company with the license application. |
| 9G | Upper pool site plan and general design, Exhibit L, Sheet 2, filed by Company with the license application. |
| 9H | Pressure tunnel and channel profile and cross sections. Exhibit L, Sheet 3, filed by Company with the license application. |

[109]

| *Exhibit No.* | *Description* |
|---|---|
| 9I | Pumping and generating station, site plan, Exhibit L, Sheet 4, filed by Company with the license application. |
| 9J | Pumping and generating station, plans and sections, Exhibit L, Sheet 5, filed by Company with the license application. |
| 9K | General description of mechanical, electrical and transmission equipment, Exhibit M, filed by Company with the license application. |
| 9L | Statement of time for beginning and completing construction, Exhibit O, filed by Company with the license application. |
| 10 | Letter dated August 18, 1960, from the Office of the Chief of Engineers, Department of the Army, to the Chairman of the Commission. |
| 11A | Flow duration curve, approximate tail water rating curve and curves showing estimated plant capability versus head, Exhibit I to the license application filed by Company on September 5, 1960. |
| 11B | Economic study, Exhibit N to the license application filed by Company on September 5, 1960. |
| 12A | Letter dated September 13, 1960, from the Commission to Company. |
| 12B | Letter dated September 2, 1960, from the Department of the Interior to the Chairman of the Commission. |
| 13 | Letter dated September 19, 1960, from Company to the Commission. |
| 14A | Flow duration curve, approximate tail water rating curve and curves showing estimated plant capability versus head, Exhibit I filed December 7, 1960, amending Exhibit I filed September 5, 1960. |

[110]

| *Exhibit No.* | *Description* |
|---|---|
| 14B | Upper and Lower pool area and volume curves, Exhibit K, Sheet 2, filed by Company on December 7, 1960, supplementary to Exhibit K, filed June 10, 1960. |
| 14C | Upper pool, plan and sections, Exhibit L, Sheet 2, filed by Company on December 7, 1960, amending Exhibit L, Sheet 2, filed by Company on June 10, 1960. |
| 15 | Map of the basin of the East Fork of the Black River and the upper basin of the Black River. |

All of the exhibits above described were received in evidence.

II—(a) Items of evidence by Reference—The following documents were offered in evidence pursuant to Section 1.26 (c)(2)(i) of the Commission's Rules of Practice and Procedure:

| *Item* | *Description* |
|---|---|
| A | Annual Report, FPC Form No. 1, filed by Company with the Commission for the year ending December 31, 1955. |
| B | Annual Report, FPC Form No. 1, filed by Company with the Commission for the year ending December 31, 1956. |
| C | Annual Report, FPC Form No. 1, filed by Company with the Commission for the year ending December 31, 1957. |
| D | Annual Report, FPC No. 1, filed by Company with the Commission for the year ending December 31, 1958. |

| *Item* | *Description* |
|---|---|
| E | Annual Report, FPC Form No. 1, filed by Company with the Commission for the year ending December 31, 1959. |
| [111] | |
| F | Power System Statement, FPC Form No. 12, filed by Company with the Commission for 1955. |
| G | Power System Statement, FPC Form No. 12, filed by Company with the Commission for 1956. |
| H | Power System Statement, FPC Form No. 12, filed by Company with Commission for 1957. |
| I | Power System Statement, FPC Form No. 12, filed by Company with the Commission for 1958. |
| J | Power System Statement, FPC Form No. 12, filed by Company with the Commission for 1958. |
| K | Certification of Incorporation, Articles of Incorporation and all amendments thereto, Certification of Organization, By-laws and List of Officers and Directors; Exhibit A filed by Company on June 10, 1960, with the license application, Project No. 2277. |
| L | Document entitled. "Stipulation of Facts," executed by counsel for the Union Electric Company and Commission Staff Counsel, dated December 21, 1960. |
| M | Letter dated January 26, 1961, addressed to Mr. J. H. Guthride, Secretary of the FPC, signed by G. A. Lindh, transmitting a letter to the President, dated August 29, 1933, a 2-page letter and a document entitled "Minutes of Meeting of the National Forest Reservation Commission, Wednesday, August 30, 1933," and two photostatic pages entitled, "For Boundaries of New National Forest Purchase Units and Additions to Existing Units, Milwaukee, Wisconsin, August 17, 1933." |

All of the foregoing Items by Reference were received in evidence.

II (b) Public Document Items—Documents described below were offered in evidence pursuant to Section 1.26(c)(2)(ii) of the Rules of Practice and Procedure.

[112]

| *Item* | |
|---|---|
| I | Document entitled "Clark National Forest Purchase Unit," published in 1937 by the National Forest Service Department of Agriculture. |
| II | Document entitled "4 Federal Register 3908." |

All of the items thus offered as Public Documents were received in evidence.

III. Request was made that official notice be taken of the following:

(a) Document entitled "Section 6 of the so-called McNamara Act, 43 Stat. 654, Sec. 6."

(b) House of Representatives Document No. 102, 73rd Congress, 1st Session.

I hereby certify that the official stenographer's report of the hearing held herein beginning on January 31, 1961, and concluding on January 31, 1961, consisting of Volumes I and II, containing pages 1 to 67, inclusive, the exhibits and other documents received in evidence as stated in Sections I, II and III, together with all papers and requests filed in the proceeding constitute the exclusive record for decision herein.

### *Appearances*

During the course of the hearing herein the following appearances were entered: For the Union Electric Company, Duane Allen Patterson, 315 North Twelfth Boulevard, St. Louis, Missouri (1). For the Staff of the Federal Power Commission, Joseph B. Hobbs, Washington, D.C.

Dated at Washington, D.C., this 19th day of December, 1961.

Samuel Binder, *Presiding Examiner.*

---

[113] Before the Federal Power Commission

Erratum Notice—January 3, 1962

(Title Omitted)

## Presiding Examiner's Decision Upon a Declaration of Intention

(Issued December 19, 1961.)

| Page | Line | |
|---|---|---|
| 3 | 31 | Change "Appalachian" to "Union." |

SAMUEL BINDER,
Presiding Examiner.

## Before the Federal Power Commission

## Exceptions of Commission Staff Counsel to Decision of Presiding Examiner—January 8, 1962

(Title Omitted)

Pursuant to Section 1.31 of the Commission's Rules of Practice and Procedure, Commission Staff Counsel excepts to the statements (pp. 13–14) in the Decision of the Presiding Examiner issued herein that it is unnecessary "and may not be desirable" to pass upon the issue raised by the Staff as to whether Union Electric Company (Union) is required to obtain a license under the Federal Power Act for its proposed Taum Sauk hydroelectric project works, for the reason that such project works will be constructed, maintained, and operated by Union to supply power to markets outside of the State of Missouri, thereby affecting the interests of interstate commerce. In this connection the Staff's main brief, dated March 15, 1961, and the Staff's reply brief, dated April 25, 1961, and filed herein, are incorporated by reference as part of these exceptions.

[114] Staff Counsel is in agreement with the Presiding Examiner, that a license is required for the construction, maintenance, and operation by Union of its proposed project works for the reason that such project works will be capable of, and will at times result in, affecting the navigable capacity of the Black River downstream from such project works. However, it is confusing to say, as did the Presiding Examiner (pp. 13–14), that it is unnecessary and may not be desirable to pass upon the second issue raised by the Staff, when in fact and in law he did pass upon such issue by finding (finding 32) that the proposed Taum Sauk project works will be constructed, maintained, and operated by Union to supply markets not only in Missouri but also in the State of Illinois, "thereby affecting the interests of interstate or foreign commerce." Moreover, full jurisdiction should be asserted. See *U.S.* v. *American Union Transport*, 327 U.S. 437, 447, 449, 456; and *Connecticut River Power Co.*, 10 F.P.C. 1255, with particular reference to the first full paragraph at page 1256, and finding (3) at page 1257.

With respect to the commerce powers under Article I, Section 8, of the Constitution, and the exercise of such powers by Congress, the Supreme Court pointed out many years ago (1877) in *Pensacola Tel. Co.* v. *West etc.*, 96 U.S. 1, 9, that: "They were intended for the government of the business to which they relate, at all times and under all circumstances." In any event, it is now clear that the authority of Congress to regulate a power project affecting interstate or foreign commerce is not limited to or dependent upon the question of whether such project would affect navigation. *Edison Co.* v. *Labor Board*, 305 U.S. 197, and *Pennsylvania Water & Power Co.* v. *F.P.C.*, 123 F. 2d 155, 158. Cf. *Gibbons* v. *Ogden*, 9 Wheat. (22 U.S.) 1, 5.

Section 23(b) of the Federal Power Act (16 U.S.C. 817) provides, in pertinent part, that if upon investigation it is found that "the interests of interstate or foreign commerce would be affected by such proposed construction such * * * corporation * * * shall not construct, maintain, or operate such dam or other project works until it shall have applied for and shall have received a license under the provisions of this Act." The statute contains no [115] exceptions, but even if Congress had expressly set forth an exception in Section 23(b) of the Act, it would be subject to the elementary rule of statutory construction requiring that an exception be strictly construed lest the exception be enlarged to exclude more than what was expressly excluded therein. See *Interstate Natural Gas Co.* v. *F.P.C.*, 331 U.S. 682, 690–691, and *United States* v. *Union Pacific Ry. Co.*, 353 U.S. 112, 116.

The most recent statement of the Supreme Court as to the purposes and scope of Part I of the Federal Power Act, as amended* is in *F.P.C.* v. *Tuscarora Indian Nation*, 362 U.S. 99, at page 118, as follows:

---

***As passed in 1920, the commerce part of the Commission's jurisdiction under Section 4(d) was limited to licensing "across, along, from or in any of the navigable waters of the United States" (41 Stat. 1063). In 1935, this was amended to its present form extending to the full interstate and foreign commerce power over non-federal water power "project works" in or along streams, without limitation to navigability (the Section was then renumbered 4(e), 49 Stat. 838). See also, *First Iowa Coop.* v. *F.P.C.*, 328 U.S. 153, 180–181; *Pennsylvania Water & Power Co.* v. *F.P.C.*, 123 F. 2d 155.**

> The Federal Power Act constitutes a complete and comprehensive plan for the development and improvement of navigation *and for the development, transmission and utilization of electric power in any of the streams or other bodies of water over which Congress has jurisdiction under its commerce powers,* and upon the public lands and reservations of the United States under its property powers. (Emphasis added.)

Consistent with the clear language of the Act, it is stated in the House Report with respect to certain of the 1935 amendments that: "They make clear the broad objective of the Act to secure Commission control over all projects involving the development of the Nation's water resources" [116] (H. Rept. 1318, 74th Cong., p. 24). A similar statement is made in the Senate Report (S. Rept. 621, 74th Cong., p. 44). "That it was the intention of Congress to secure a comprehensive development of natural resources and not merely to prevent obstructions to navigation is apparent from the provisions of the Act." *First Iowa Coop. v. F.P.C.*, 328 U.S. 152, 180–181. Cf. *U.S. v. Public Utilities Commission*, 345 U.S. 295, 315, 319–321.

Thus, in Part I of the Federal Power Act, as strengthened and clarified by the 1935 amendments (49 Stat. 838), Congress has conferred on the Commission all of its licensing authority with respect to non-federal water power project works in or along streams over which Congress has jurisdiction under its commerce powers.

As shown above, the construction, maintenance and operation of the proposed Taum Sauk project works without a license

---

158; and *Namakagon Hydro Co. v. F.P.C.*, 216 F. 2d 509, 511. Cf. *Lake Ontario Land Develop. Corp. v. F.P.C.*, 212 F. 2d 227, 232.

The second paragraph of Section 23 of the Federal Water Power Act of 1920 (41 Stat. 1063) contained a provision by which a person intending to construct project works in or along non-navigable waters might in his discretion file a declaration of intention and so have a determination made by the Commission, whether "the interests of interstate or foreign commerce would be affected by such proposed construction." In 1935 this provision was reenacted as Section 23(b) of the Federal Power Act with certain changes, including a change making it mandatory to file a declaration of intention in such circumstances. Since the above-quoted phrase in Section 23 was as broad in scope as it could be made, it would have been difficult to amend that phrase without limiting its scope.

is prohibited by Section 23(b) of the Act if the Commission finds that the interests of interstate or foreign commerce would be affected by such proposed construction. In consequence, assuming arguendo, and merely for purpose of illustration, that the Commission should reverse the Presiding Examiner with respect to that part of his decision relating to the effect of the proposed project works on downstream navigable capacity and affirm his decision in all other respects, a license would be required since the Presiding Examiner has found that such proposed project works located in Missouri will be used to develop power to supply markets in Illinois "thereby affecting the interests of interstate or foreign commerce."

Staff Counsel excepts to those statements of the Presiding Examiner at pages 13 and 14 of his decision which are inconsistent with his finding No. 32. The language at pages 13 and 14 of the Presiding Examiner's decision should be corrected to conform with his finding No. 32.

Respectfully submitted,

JOSEPH B. HOBBS,
Commission Staff Counsel.

January 8, 1962.

[117] *Certificate of Service*

[Omitted in printing]

## Before the Federal Power Commission

## *Exceptions and Supporting Reasons of Union Electric Company to Decision of Presiding Examiner—January 8, 1962*

To the honorable the FEDERAL POWER COMMISSION:

Pursuant to Section 1.31 of the Commission's Rules of Practice and Procedure, Union Electric Company ("Union"), Declarant herein, hereby appeals to the Commission from, and hereby files its exceptions to, the Decision issued in the foregoing proceeding on December 19, 1961, by Samuel Binder, Presiding Examiner; said Decision having been served on Union on December 21, 1961, and this appeal and these exceptions being filed within the period provided therefor by the Rules of Practice and Procedure.

Taken as a whole the Decision of Presiding Examiner Binder herein illustrates a failure to comprehend the facts, the law or the issue involved. This conclusion will be documented by the reasons cited in support of the specific exceptions hereinafter stated. While some of the exceptions may not be of substantial significance when considered independently, Union deems it advisable to specify [118] such exceptions so that (a) the issue herein may be considered and determined in a completely accurate posture, and (b) such errors may not be perpetuated by failure to object thereto.

## EXCEPTION No. 1

### DECISION, PAGE 2

> ". . . the water impounded in the lower pool (consisting of approximately 6,000 acre-feet of which approximately 4,000 acre-feet would lie between elevations 735 and 750) being pumped against a dynamic head of approximately 811 feet into an energy storage reservoir designated the 'upper pool'; the 'upper pool,' to be constructed on top of an adjoining mountain, to have a surface area of approximately 32 acres, and to impound approximately 4,000 acre-feet between elevations 1515 and 1625 within a rock-fill concrete-faced dike approximately 110 feet high; . . ."

### SUPPORTING REASONS

The volume of the lower pool is 6,350 acre feet, not 6,000 acre feet; the volume of the upper pool is 4,350 acre feet, not 4,000 acre feet; and the surface area of the upper pool is 55 acres, not 32 acres.

### SUPPORTING REFERENCES

Item L, pp. 12–13; Exhibit 14B.

## EXCEPTION No. 2

### DECISION, PAGE 3

> "The plans provide for a maximum water surface at the dam for the lower pool to be 763 feet above mean

> sea level, at which level the spillway would have a capacity to pass a discharge of 70,000 cubic feet per second. An increase of one foot in the water surface at the spillway would result in a discharge capacity in the order of 80,000 cubic feet per second."

### SUPPORTING REASONS

Actually, the plans provide for the top of the dam at the lower pool to be at 750 feet above mean sea level. Thus, [119] the planned maximum water surface in the lower pool will be at 750 feet—not 763 feet—above mean sea level. Further, this maximum water surface will be maintained only for those brief periods which follow a complete emptying of the upper pool and which precede the start of the pumping cycle. It is true—and it was so stipulated—that the spillway of the dam is designed to pass over the free crest thereof flows up to 70.000 cubic feet per second. At such a rate of flow, it has been estimated that the water surface at the spillway would be approximately 763 feet above mean sea level. This, however, is a safety factor and not a planned water level. Moreover, the character of the conjecture stated in the Decision can best be appraised by the *facts* that (a) the admitted stream flows occurring more than 99½% of the time can be passed through the sluices in the dam without recourse to the vast capacity of the spillways, (b) the sluices alone have a maximum capacity of approximately 26 times the average flow of the East Fork, and (c) the highest recorded flow in history at the Project site—occurring just once—was only 33.200 cubic feet per second.

### SUPPORTING REFERENCES

Item L, pp. 10, 13–14; Exhibits 6A, 9E, 9F, 14A; Staff Reply Brief, pp. 8–9.

## EXCEPTION No. 3

### DECISION, PAGE 4

> "The Black River is downstream from the confluence of Taum Creek and the East Fork of the Black River and is part of the navigable waters of the United States, being navigable from a point at the mouth of the East Fork four miles below the site of the proposed dam, to the mouth of the Black River."

### SUPPORTING REASONS

The recognition by the Stipulation of the fact that the Corps of Engineers once determined that "the head of navigation *for floating ties and timber*" [emphasis supplied] of the Black River is at or near the mouth of the [120] East Fork does not support a finding by the Presiding Examiner that the Black River is navigable in fact or in law downstream from the mouth of the East Fork. There has been no attempt in this proceeding by either party to prove that the Black River is navigable downstream from the mouth of the East Fork. Although such navigability has not been shown, has not been, and is not now admitted, Union recognizes the necessity of assuming, arguendo, such navigability in order to expose the erroneous factual and legal conclusions compounded on this assumed base by the Staff and by the Presiding Examiner.

### SUPPORTING REFERENCES

Item L, p. 11; Union's Brief, pp. 14–15.

## EXCEPTION No. 4

### DECISION, PAGE 4

> "The position of Union on the law is to the effect that before the licensing provisions under the Act become applicable in this proceeding the Staff of the Commission must prove that the construction, maintenance, and operation of the project works on the navigability of the Black River will be 'both substantial and inevitable' ".

### SUPPORTING REASONS

Apparently several words have been omitted from this statement. Union's position is that before the licensing provisions of the Act become applicable the Staff must prove that construction, operation and maintenance of the project works will substantially and inevitably affect the navigable capacity of navigable waters of the United States.

### SUPPORTING REFERENCES

Union's Brief, pp. 6, 10.

### DECISION, PAGES 4 AND 5

> "The cases cited by Union do not contain any definition of the term 'substantial' which could be said to be helpful in evaluating the facts agreed upon in this proceeding. Specifically, the cases cited do not spell out the degree to which navigability must be affected to be considered 'substantial'. A reading of the cases cited by Union illustrates that the term 'substantial' as used by Union has been interpreted by the courts or the Commission to mean an effect which is 'serious', 'appreciable', 'measurable', or 'pronounced', and not an effect which is merely 'de minimis'. The facts in the cases cited by Union demonstrate that despite the adjectives which have been quoted that what is meant by the courts as being 'substantial' insofar as the effect on navigability is concerned is in large part dependent upon the evaluation of specific sets of circumstances by the persons authorized by law to decide the cases, i.e., the regulatory agencies or the courts. This evaluation of the effect of a particular project works as being 'substantial' or 'appreciable' or the employment of some other adjective in describing the effect on navigability is largely a matter of judgment in particular circumstances and the circumstances of a past project are seldom so similar to a project under consideration as to be precedential."

### SUPPORTING REASONS

The Presiding Examiner is obviously correct when his Decision states that:

> "A reading of the cases cited by Union illustrates that the term 'substantial' as used by Union has been interpreted by the courts or the Commission to mean an effect which is 'serious', 'appreciable', 'measurable', or 'pronounced', and not an effect which is merely 'de minimis'."

Certainly, these words establish the criterion of the effect to be evaluated. However, when the Decision departs from the factual observation quoted immediately above and states that the cited decisions stand for the proposition [122] that the critical test should be based on subjective rather than objective criterial, the Decision announces a grievous misstatement of the law. Indeed, if this be the test established by the Congress, the law itself is unconstitutional.

**Also, the omission of the *Rio Grande* case from the list of** citations in Footnote 4 on the bottom of page 5 of the Decision is most glaring, for, if there is any question as to the meaning of the terms, the Supreme Court in that case (*United States* v. *Rio Grande Dam & Irrigation Co.;* 174 U.S. 690, 709), stated:

> "The question is always one of fact, whether such appropriation *substantially* interferes with the navigable capacity within the limits where navigation is a recognized fact." [Emphasis supplied.]

While the test used in the *Rio Grande* case to determine whether or not waters are navigable is no longer limited to instances where navigation is a recognized fact, the "substantial interference" test remains valid and should be applied in this case. Moreover, there has been no showing of licensing jurisdiction having vested in the Commission under Sections 4(e) or 23(b) where there has been less than a substantial interference with navigable capacity. Thus there is no reason—or precedent—for Commission jurisdiction in this instance because, as evidenced by the Record herein, there has been no showing that a substantial effect will result from the construction, operation or maintenance of the Taum Sauk Project.

### SUPPORTING REFERENCES

Sections 4(e) and 23(b) of the Federal Power Act;

*Oklahoma* v. *Guy F. Atkinson Co.,* 313 U.S. 508;

*United States* v. *Rio Grande Dam & Irrigation Co.,* 174 U.S. 690;

*United States* v. *Appalachian Electric Power Co.,* 107 F. 2d 769;

*United States* v. *Appalachian Electric Power Co.;* 23 F. Supp. 83;

*Brazos River Conservation and Reclamation District,* 10 FPC 696;

*Citizens Utilities Co.*, 21 FPC 233;
*Clam River Dam Co.*, 2 FPC 953;
[123] *Eastern New York Power Corp.*, 6 FPC 633;
*Nantahala Power & Light Co.*, 8 FPC 690;
*Niagara Mohawk Power Corp.*, 10 FPC 715;
*Presque Isle County Electric Cooperative Assn.*, 8 FPC 687.

### EXCEPTION NO. 6

#### DECISION, PAGE 6

> "It is true that in this case it is clear that the project works will not be on navigable waters of the United States. Union contends therefore that a factual showing that the construction and operation of the project works are not on navigable waters of the United States but will only have the capability of affecting the navigability in a stretch of water downstream which concededly is part of the navigable waters of the United States is not an adequate basis to establish that the Commission's licensing authority under the Federal Power Act is applicable."

#### SUPPORTING REASONS

The foregoing statement is less than a fully accurate statement of Union's position herein. Union has repeatedly stated that the project will not produce a *serious, measurable, substantial* or *pronounced* effect on the downstream waters of the Black River or on the alleged navigability thereof.

It is true, however, that Union contends that an effect which is not serious, measurable, substantial or pronounced will not provide a basis for Commission jurisdiction of the project under Sections 4(e) or 23(b). Union also contends that unless the effect is inevitable, or necessarily certain to occur, it will likewise fail to provide a basis for commission jurisdiction of the Project. In these regards Union differs with the Staff, which—without support in law, reason or precedent—reaches for jurisdiction where none attaches.

The foregoing statement of the Decision is also erroneous when it states that the waters downstream are "concededly" navigable waters. In this connection, see the statement under Exception No. 3, supra.

[124] SUPPORTING REFERENCES

Sections 4(e) and 23(b) of the Federal Power Act.

All Supporting Reasons and References under Exceptions 4 and 5.

Union's Brief, pp. 6–12.

## EXCEPTION NO. 7

### DECISION, PAGE 7

> "The Staff has cited a number of recent cases to support its position as to the appropriate basis on which to test jurisdictional authority, and *Citizens Utilities Co.* v. *Federal Power Commission*, 279 F. 2d 1 (1960), and *Carolina Aluminum Co.*, 19 FPC 704 (1958), cited by the Staff appear to be directly in point. These cases hold that where a showing is made that the construction, operation, and maintenance of hydroelectric project works located on non-navigable waters is capable of having a measurable effect on navigable waters of the United States downstream that then the licensing provisions of the Act are applicable."

### SUPPORTING REASONS

It is erroneous and misleading to assert that the cited cases hold that the licensing provisions of the Act are applicable upon a mere showing of capability of "having a measurable effect" on navigable waters downstream from a project. In fact, the cited cases show just the opposite, for in each of these cases much more than mere capability was present. In the *Citizens Utilities Co.* case the project was already in existence, and the Court of Appeals stated that the utility's dams actually did in their normal operation affect navigable waters. In the *Carolina Aluminum Co.* case the ordinary, normal and planned operation of the project—with its alternate storing and releasing of water—inevitably produced a downstream effect. In fact, the project could not have been operated otherwise.

**Thus, it is manifestly clear that the two cited cases were determined on a basis of actual or inevitable effect; not on a basis of mere capability of effect.**

[125] SUPPORTING REFERENCES

*Citizens Utilities Co.* v. *Federal Power Commission*, 279 F. 2d 1.

*Carolina Aluminum Co. et al.*, 19 FPC 704.

### EXCEPTION NO. 8

#### DECISION, PAGE 7

> "In the *Citizens Utilities* case, the Court of Appeals for the Second Circuit held that the Commission had licensing jurisdiction where private hydroelectric dams were constructed across a river at a point where there was a question whether the river was navigable but where the operation of the dams was capable of affecting temporarily the flow of water at a lower point in the stream which was navigable and did so in the ordinary operations of such dams."

#### SUPPORTING REASONS

Again, the language of the Presiding Examiner's Decision is deceptive. The Court of Appeals, as noted in our statement under Exception 7, supra, based its decision in the *Citizens Utilities Co.* case on *actual* effect *not* on *capability*. In fact, Judge Hand concluded his opinion as follows (l. c. 3):

> "Concluding as we do that all the *petitioner's dams* on the Clyde River *do 'affect' the navigability* of the last mile of that river, it becomes unnecessary for us to decide how much if any of the river above Unit No. 11 is 'navigable.'" [Emphasis supplied.]

#### SUPPORTING REFERENCES

*Citizens Utilities Co.* v. *Federal Power Commission*, 279 F. 2d 1.

## EXCEPTION No. 9

### DECISION, PAGE 7

"Accordingly, it is clear that where dams are proposed to be constructed even on a non-navigable stream, which are capable in their ordinary operation of affecting measurably the flow of water at a lower [126] point of the river which is navigable the law is that the Commission's jurisdiction attaches and the licensing provisions are applicable."

### SUPPORTING REASONS

This conclusion is obviously false because it is based on a false premise, namely: the Presiding Examiner's misstatement concerning the holdings in the *Citizens Utilities Co.* case and the *Carolina Aluminum Co.* case. As we have seen, mere capability is not the test and the foregoing cases do not stand for the proposition that mere capability is enough to vest jurisdiction.

Moreover, even if the law were as stated by the Decision (which it most certainly is not), it would not follow that the Commission would therefore have jurisdiction over the Taum Sauk Project because the Record does not show that the Taum Sauk Project will have a "measurable effect" on any navigable waters. And, indeed, it will not have such an effect.

Also, it should be noted that in postulating his rule, the Presiding Examiner recognized that the effect produced must result from the "ordinary operation" of the project. Such *is* the law as established by precedent. Regarding this matter, see Union's statement under Exception 10, infra.

### SUPPORTING REFERENCES

All supporting references under Exception 7.

All supporting reasons and references under Exception 5.

## EXCEPTION No. 10

### DECISION, PAGE 7

"Further, it appears that the holding in the Citizens case is inconsistent with the rigid test of 'inevitability' to establish jurisdiction which would be imposed by Union."

SUPPORTING REASONS

Quite to the contrary, the holding of the Circuit Court in the *Citizens Utilities Co.* case is consistent with the [127] test of "inevitability." Moreover, the test is imposed by law, not by Union. As stated in Union's Brief (pp. 12–14) the Court of Appeals in *United States* v. *Appalachian Electric Power Company* (107 F. 2d 769, 787–790), the controlling case on the subject, held that the effect produced must be the "necessarily or practically certain, and not merely the probable, result." The *Citizens Utilities Co.* case accords with the *Appalachian* holding because an *actual* effect was found by the Court to result from Citizens' operation of its dam and it was found to be produced "in the ordinary operation of the petitioners business." So too, the effect produced in the *Carolina Aluminum Co.* case necessarily and inevitably resulted from the ordinary operation of the subject dams. In fact, we know of no case—and have been cited to none—wherein the licensing jurisdiction of the Commission was held to be applicable and the effect was one produced other than in the normal, ordinary operation of the project.

Thus, in every case where the Commission has been held to have licensing jurisdiction, the ordinary, normal operation of the proposed project necessarily produced a substantial effect on navigability. This is an important distinction from the instant case, for while the *Citizens Utilities Co.* case and the *Carolina Aluminum Co.* case necessarily produced an effect on navigability by reason of the normal, ordinary operation of the subject projects (viz., the alternate storing and releasing of waters in a stream), the Taum Sauk Project will impound water only initially and thereafter the project will utilize the same water over and over. Day in and day out after the initial impoundment, all of the natural flows in the streams feeding into the lower pool will be passed through or over the dam as though the plant did not exist. Thus, there will "in the ordinary operation of the dam" be no effect on the waters downstream, much less a substantial or inevitable effect.

### SUPPORTING REFERENCES

*Citizens Utilities Company* v. *Federal Power Commission*, 279 F. 2d 1;

*United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 76;

[128] *United States* v. *Appalachian Electric Power Co.*, 23 F. Supp. 83;

*Carolina Aluminum Co. et al.*, 19 FPC 704;

*Citizens Utilities Co.*, 21 FPC 233;

Item L. pp. 12–14.

## EXCEPTION No. 11

### DECISION, PAGES 7 AND 8

• • • • • • • • • • • • • • • • • • • •

> "In *Carolina Aluminum Company*, 19 F. P. C. 704, the company proposed a dam on non-navigable water but it was found as fact that its operation was capable of having an effect on navigability at points downstream in navigable waters of the United States. The Commission held that the project works were subject to the licensing provisions under the Act. In this connection, the Commission adopted language in the decision of the presiding examiner reading as follows:
>
> " 'In determining the jurisdiction of this Commission based upon the downstream effect of any hydroelectric development on navigable capacity, such jurisdiction does not depend upon the manner in which a hydroelectric development has been operated in the past or is proposed to be operated in the future but upon the effect which such hydroelectric development *is capable of having upon navigable capacity at points downstream.* Moreover, each hydroelectric development may, for the purpose of determining the question of jurisdiction arising from downstream effect, be considered and treated as if no other hydroelectric development were located within the stream either above or below the development, which is the subject of the jurisdictional inquiry' " [emphasis by Binder].

### SUPPORTING REASONS

It must be pointed out again that the Presiding Examiner creates an erroneous impression by seeking to divorce the facts and the basis of the holding from the language of the decision. We therefore repeat that the *Carolina Aluminum* case was decided on the basis of [129] effects which would necessarily result from the operation of the dam therein proposed—not on a basis of mere capability of effect.

### SUPPORTING REFERENCES

*Carolina Aluminum Co. et al.*, 19 FPC 704.

## EXCEPTION No. 12

### DECISION, PAGE 8

> "It appears that if a proposed hydroelectric development on a non-navigable stream is capable of having a measurable effect on navigable capacity at points downstream in waters of the United States which are navigable that then the proposed project works are subject to the licensing provisions under the Act, and the law does not require a showing that the effect on navigability is inevitable."

### SUPPORTING REASONS

The foregoing statement is obviously not true. To begin with, it is a generalization based upon a misconception of the holding and meaning of the *Carolina Aluminum Co.* case, which the Presiding Examiner quoted immediately above this passage in the Decision. Having a false premise as its basis, the resulting conclusion is, of course, false. In addition, however, the Presiding Examiner's conclusion is contrary to every recorded case dealing with the subject, for never has the Commission's licensing jurisdiction been held to apply in a situation where the substantial effect produced was other than the inevitable result of the ordinary, normal operation of the project. Further, the Commission could not legally have undertaken in the *Carolina Aluminum Co.* case, and cannot legally undertake in this proceeding, to accept the rule here announced by the Presiding Examiner, for the Commission is bound by the controlling law of the *Appalachian* case (107 F. 2d 769).

### SUPPORTING REFERENCES

*United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769;

[130]. *United States* v. *Appalachian Electric Power Co.*, 23 F. Supp. 83;

*Citizens Utilities Co.* v. *Federal Power Commission*, 279 F. 2d 1;

*Carolina Aluminum Co., et al.*, 19 FPC 704.

## EXCEPTION NO. 13

### DECISION, PAGE 8

> "For example, the fact that a stream has acted in a specific way numerous times in the past may establish the probability that it will act similarly again in the future and will surely establish that it has the capability of acting that way in the future. It would not necessarily establish, however, that it would do so inevitably. To require the establishment of an 'inevitable' effect would be unrealistic."

### SUPPORTING REASONS

The foregoing statement has no application to the issue at hand. As a matter of fact, it betrays the Presiding Examiner's lack of understanding of the subject matter. The inevitability test pertains to the effect produced by the subject project. When the normal, ordinary operation of the project will necessarily produce an effect downstream, such an effect is said to be inevitable. If, on the other hand, the normal, ordinary operations of the project would not produce an effect downstream, there is no inevitable effect resulting from such normal, ordinary operation.

### SUPPORTING REFERENCES

All supporting reasons and references under Exception 5;
All supporting reasons under Exception 9.

## EXCEPTION NO. 14

### DECISION, PAGE 9

> "After the impounding of the water in the lower pool has been completed, it is expected by Union that water will be discharged through or over the dam [131] in amounts equal to the inflow into the lower pool from the streams above and that, therefore, the streams below the project will not be affected by the existence or operation of the plant. On this basis it is claimed that there will be no effect on the navigability of the Black River."

### SUPPORTING REASONS

In the interests of accuracy, it should be noted that what is described above as an expectation, is in reality the condition which will obtain during normal, ordinary operation of the Project. Union's position is that such normal, ordinary operation will not produce a substantial effect downstream. Under the applicable law, therefore, the Commission's licensing jurisdiction is not applicable to the Project.

### SUPPORTING REFERENCES

Item L, pp. 13–14; Exhibit 1, pp. 7–9.

## EXCEPTION NO. 15

### DECISION, PAGE 10

> "These varying flow conditions when considered together with the physical character of the project works are capable of affecting navigability on the Black River in differing degrees dependent in large part upon the flow conditions at the times being considered. In this connection, the Staff has given consideration to five

situations where the proposed project works would be capable of affecting the navigability of the Black River, to wit, (a) the effect on navigable capacity during the filling period; (b) the effect of the navigable capacity during high flow periods; (c) the effect on navigable capacity during malfunctions of facilities; (d) the effect on navigable capacity during emergency operation of the Taum Sauk plant; and (e) the effect on navigable capacity during average flows and normal operation of the Taum Sauk project works."

[132] SUPPORTING REASONS

The foregoing statement is extremely misleading because it infers that the Presiding Examiner has found that the Taum Sauk Project "would be capable of affecting the navigability of the Black River" in each of the five situations enumerated. In fact, however, it is most significant that with respect to the only described situation which could, under the applicable law, vest licensing jurisdiction in the Commission [i.e., under the (e) situation of average flows and normal operation] the Presiding Examiner's full statement and conclusion is (page 11):

> "During stream flows of 2800 feet per second or less into the lower pool and for the normal cycles of generation and pumping for the project works there would be no increase or decrease in the natural stage and flow below the project works, assuming no emergency operations, and no malfunctions of facilities."

[It is pointed out that recorded flows indicate that more than 99½% of the time the stream flows are 2000 feet per second or less at the project site.]

While the other four situations referred to are based largely on conjecture or misunderstanding, they will be considered individually, infra. Suffice it to say at this time, that the Record does not show, nor has the Staff alleged, that the Commission has ever been held to possess licensing jurisdiction on such a speculative or temporary basis as that posed by any of the other four situations.

### SUPPORTING REFERENCES

Item 6, p. 10; Exhibit 14 A.

## EXCEPTION No. 16

### DECISION, PAGES 10 AND 11

"The first set of circumstances considered are those relating to the effect on navigable capacity during the filling period. The company has considered that the filling period would occur only once in the operation of the project. The Staff has pointed out that the lower pool will be filled not only during the initial [133] operation of the project but also that there will be an emptying of the lower pool regularly during the normal operation of the project. The effect on the navigable water during the normal cycle through the pumping of the water from the lower pool and the return of this water during periods of generation of electricity will be dependent upon flow conditions at the time, and these flow conditions are unpredictable specifically as to time or volume years in advance but the records maintained in the past show a wide variance in flow conditions at various times. Moreover, there would be normally the problem of regular inspection and maintenance for repair of the project works which could require the emptying of either or both of the pools involved.

"It is clear enough that the lower pool will initially hold back water from the East Fork of the Black River and that this will reduce the natural flow below the dam, thus affecting the storage and flow of the East Fork of the Black River. The degree to which this operation will affect the flow below the dam and the navigability in the Black River is dependent upon the amount of inflow to the lower pool from the East Fork and the amount of the total flow retained for storage. As has been pointed out the flows in the proposed dam of the lower pool have equalled or exceeded 100 cubic feet per second about one quarter of the time. Dependent upon how the operations were conducted, it appears that if the flow during the impoundage of the lower pool from the streams above the dam were at the rate of 105 cubic feet per second (as they are about one-fourth of the time) and if 50 cubic feet per second were stored, the lower pool would be filled in approximately 63 days. In the latter case, the stage or the water surface level of the Black River at the Annapolis gage during such circumstances would be reduced by about a tenth of a foot and the water surface level on the East Fork about 3.7 miles below the dam site would be reduced about one foot.

"If the flow were at 105 cubic feet per second, and all the flow were retained the pool would be filled in somewhat less than 32 days and the stage on the [134] Black River would be reduced by about two-tenths of a foot and the stage of the East Fork about 3.7 miles below the dam site would be reduced by about 2 feet.

"If there were higher flows during impoundage, the pool could be filled very quickly.

"While the flows in the proposed dam of the lower pool have exceeded 2,000 cubic feet per second, less than one-half of one per cent of the time the fact is that such flows have occurred in the past, and there is no good reason to assume that such flows will not occur again. If the flow were 2,000 cubic feet per second and one-half of that were stored, the surface level in the Annapolis gage would be reduced about 0.5 feet and the stage 3.7 miles below the dam on the East Fork would be reduced by 0.8 feet."

### SUPPORTING REASONS

Apparently, the Presiding Examiner has failed to understand that water will be taken from the natural stream flow and impounded for the Project purposes only once, that is, at the time of the initial filling. The Record herein shows that after such initial filling, all of the natural flows in the streams feeding into the lower pool will be passed through or over the dam, and the effect downstream will be as though the plant did not exist. It should be noted, also, that the effects described by the Presiding Examiner as occurring at a point "3.7 miles below the dam site" are at a point which is admittedly non-navigable.

In any event, the initial impoundment is of no legal significance because the downstream effect would be "only very temporary" and, under the controlling doctrine of the *Appalachian* case (107 F. 2d 769, 787) would not constitute grounds to invoke the licensing jurisdiction of the Commission.

Moreover, when the Decision seeks to establish as a basis for licensing jurisdiction the emptying of "either or both of the pools" for inspection or maintenance, the Presiding Examiner has over-extended himself. There is no basis in the Record for such conjecture, and there is no contemplation that such an emptying will ever be neces-[135]sary. In fact, the upper pool will, as a part of normal operation, be emptied regularly. This will have no downstream effect because the natural flows will continue to pass through or over the dam. Moreover, all maintenance will be performed without affecting normal operations.

### SUPPORTING REFERENCES

Item L, pp. 5, 12–14.
Exhibit 1, p. 9.
*United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769.

## Exception No. 17

### DECISION, PAGE 11

> "There have been a number of occasions in comparatively recent years when high-flow conditions have been experienced. The record shows that there were high-flow conditions experienced during June 6–10, 1945, January 23–24, 1949, and May 9–10, 1960. Had the project works been in existence in the 1945 flood period the natural maximum stage below the dam of the upper pool would be reduced by about 0.3 feet, and the maximum peak flow past the dam would be reduced from 33,200 to 30,800 cubic feet per second.
>
> "In the high-flow period of January, 1949, the generating cycle would have added to the natural peak flow past the dam of the lower pool by increasing it from 17,600 cubic feet per second to 21,800 cubic feet per sec-

ond and the dam at the lower pool would reduce the natural stage below the dam by 0.2 feet to 0.4 with no plant operation.

"For high-flows, such as that of May 9–10, 1950, and with operation of the plant, the pumping cycle of itself would reduce the natural stage below the dam of the upper pool by about 0.8 feet, but the generating cycle would increase the stage below the dam above natural stage by about one foot."

## SUPPORTING REASONS

In several instances the foregoing hypothetical situations postulate a flow below the upper pool; obviously, there is no flow there and it is assumed that the presiding Ex- [136] aminer had reference to the flow below the one and only dam at the lower pool.

It should be borne in mind that the Project will, after the initial impoundment, always retain approximately 6,350 acre feet of water. Since this amount will be fixed, all waters thereafter coming into the lower pool from feeding streams will be passed through or over the dam. As we have seen, the sluices alone (without recourse to the spillway capacity) will be sufficient to pass such waters through the dam over 99½% of the time. On the other rare occasions—such as the high flows here proposed—the effect of the Project will vary from none (if the lower pool is filled at the onset of the high flow) to a mere delaying of the flow (if the lower pool is at less than the 750 foot level at the onset of the flow). In any event, the downstream effect would be temporary and insignificant in character and extremely infrequent in occurrence. In this connection it should be noted that the effects cited by the Decision are the effects "below the dam", which is a point admitted to be non-navigable. Even these insignificant effects would be greatly attenuated—if indeed discernible—by the time the flow would reach the Black River.

## SUPPORTING REFERENCES

Item L, pp. 10, 12–14.

## EXCEPTION No. 18

### DECISION, PAGES 11 AND 12

"If an electric power emergency were to occur requiring a rapid change from a pumping cycle at the rate of about 5,000 cubic feet per second and the lower pool were about full there would be an increase of about 9,000 cubic feet per second in the flow below the dam.

"As we have noted hereinabove when the two motor driven pumps to bring water to the upper pool are operating together at 200 revolutions per minute they will deliver about 5,000 cubic feet per second to the upper pool and the average turbine discharge while [137] generating may average as much as 6,800 cubic feet per second. The change from pumping to generation in such circumstances would increase the stages as follows: 2.4 feet below the dam, 1.6 feet at Lesterville and about one foot at Annapolis gage.

"It is clear that operation during emergency conditions has the capability to affect navigability on the Black River."

### SUPPORTING REASONS

Again in this "emergency" postulate, the Presiding Examiner displays a failure to comprehend the operation of the Project. As previously stated and as shown by the Record, there will be a fixed amount of water retained for the Project. Actually, this amount of water could be moved between the upper and lower pools indiscriminately without producing any effect—substantial or otherwise—on downstream flows.

## EXCEPTION No. 19

### DECISION, PAGES 12 AND 13

"It cannot reasonably be said that the possibility of malfunction or mechanical failure does not exist in this project. There certainly exists the possibility of human or mechanical failure. In this project the possibility of such failure exists through the improper operation of stream gages, failure of the stream flow facilities to record correctly the inflows and outflows, or to transmit flow information to the control points, clogging of the intake to sluiceway works, or failure of facilities. If there were malfunction during periods of flood and the generators were employed it would affect navigability severely, particularly because the effect of generation would be to add to the unusual accretion of water.

"Under conditions where the natural flows were 105 cubic feet per second in the East Fork and 582 cubic feet per second in the Annapolis [sic] River at the Annapolis gage and if it be assumed that the lower pool were full to elevation of 750 feet above mean sea level, the sluice in the dam were closed and not operated, [138] and a generating cycle were started and continued until all the water were withdrawn from the upper pool the result would be that the stage of the East Fork immediately below the dam would be increased by 7.0 feet; the stage at the Lesterville gage would be increased by 5.7 feet; the stage at the Annapolis gage would be 3.4 feet.

"If under the described conditions there were a reversal from generation to pumping, all of the flow below the dam would be shut off and there would be a reduction at the Annapolis gage of 0.2 feet.

"Another possibility, which as the Staff points out, could occur at any time, would be the effect on navigability of incorrect operation of the sluiceway. For example, during the month of August if there were a condition of low flow such as a flow of 5 cubic feet per second into the lower pool and 107 cubic feet per second in the Black River at the Annapolis gage and the Taum Sauk project works were not in operation, the abrupt release of water through the sluiceway could result in the dumping of 2,000 cubic feet per second from the lower pool. This would cause the stage just below the dam to rise about 5.5 feet; the stage at Lesterville would increase about 4.4 feet; and the stage at Annapolis would increase approximately 2.2 feet."

### SUPPORTING REASONS

The citing of "the possibility of human or mechanical failure" as a basis for justifying Commission jurisdiction of the Taum Sauk Project probably illustrates more graphically than would otherwise be possible the tenuous foundation of the Staff's position and the Presiding Examiner's Decision herein. Indeed, if this is a basis for licensing jurisdiction, the Congress in writing the law, the Courts in enforcing the law, and the Commission in its administration of the law have been engaging in vain activities, for every project is subject to the possibility of human or mechanical failure. Unfortunately, the Presiding Examiner failed to indicate the manner in which Commission jurisdiction would avert or alleviate "the possibility of human or mechanical failure."

[139]

## EXCEPTION No. 20

### DECISION, PAGE 13

> "The flow conditions described hereinabove have been scientifically determined to have existed in the past. There is no reason to believe that they will not occur again. In fact, ordinary prudence would dictate an opposite conclusion. In addition the possibility of malfunction is always present. The impact of the flow conditions and the construction, operation, and maintenance of the project works upon the navigability on the Black River would vary from a de minimis effect to a substantial effect. Most of the time navigability of the Black River would not be substantially affected but there will be times when it will be affected. The problem to be resolved, however, is not whether the Commission should extend its attention to situations where the effect on navigability is not always substantial or is not continuous but whether under the law navigability will be affected to a measurable degree by the maintenance, construction, and operation of the project works. Here it will be so affected."

### SUPPORTING REASONS

In the foregoing statement, the Presiding Examiner disregards the controlling law on the subject; for, in order to impose the Commission's licensing jurisdiction on a project in a non-navigable stream, applicable law requires that the effect produced by the normal, ordinary operation of such project be substantial and inevitable. Factually, the Record herein does not show that there will be such an effect from the Taum Sauk Project. In truth, the Decision herein bases its finding of Commission licensing jurisdiction on a set of unlikely—and often impossible—combinations of contingencies never even remotely considered as a valid basis for licensing jurisdiction in any previous proceeding. Indeed, it would be difficult to conceive of a project having less of a downstream effect than that, if any, which will result from the construction and operation of the Taum Sauk Project.

[140]

### SUPPORTING REFERENCES

All supporting reasons and references under Exceptions 4, 5, and 6.

Union's Brief, pp. 21–24.

## EXCEPTION NO. 21

### DECISION, PAGE 13

> "An additional issue raised by the Staff is whether Union was required to obtain a license under the Act because the Taum Sauk Project will be constructed, maintained, and operated by Union to supply markets outside the state of Missouri thereby affecting the interests of interstate or foreign commerce. The Staff contends that on this basis alone, a license would be required under the Act."

### SUPPORTING REASONS

The Taum Sauk Project will not be constructed, maintained and operated "to supply markets outside the state of Missouri." More accurately stated, the Taum Sauk Project will be constructed, maintained and operated to supply the electrical markets served from or through Union's interconnected system. In supplying such markets it is possible that some of the power and energy released at Taum Sauk may supply markets outside the state of Missouri, but it is misleading to indicate or infer that the supply of outstate markets is the sole or primary office of the Taum Sauk Project.

### SUPPORTING REFERENCES

Item L, p. 18.

## EXCEPTION NO. 22

### DECISION, PAGE 13

"The sole issue in this case is whether or not Union is required to obtain a license to construct, operate, and maintain the Taum Sauk Project works. That issue has been decided in the affirmative for the reasons which have been set forth hereinabove. It is, therefore, unnecessary and may not be desirable to pass upon the second basis urged by the Staff for requiring Union to obtain a license. Sufficient ground [141] has already been established upon which it must be held that the Commission has jurisdiction and that Union must obtain a license for its Taum Sauk Project works."

### DECISION, PAGE 14

"It has been concluded that it is requisite under the law with regard to the effect on navigability that Union obtain a license for the construction, maintenance and operation of its Taum Sauk Project works without regard to the fact that it will supply markets outside the state of Missouri with energy obtained through the operation of the Taum Sauk Project. Accordingly, it is not necessary to pass upon the legal effect insofar as the licensing requirements are concerned because of the supply of electricity which would be transmitted to in-

> terstate markets by reason of the construction and operation of the Taum Sauk Project. A showing that the Taum Sauk Project works will have a measurable effect on the navigability of the Black River which is part of the navigable waters of the United States is a sufficient showing to establish that a license must be obtained from the Commission."

### SUPPORTING REASONS

There are two main objections to the passages quoted for this Exception.

First of all, Union objects and excepts to the statements and conclusions indicating that the Taum Sauk Project will have a measurable effect on the navigability of the Black River and that Union must therefore obtain a license for such Project. Since these statements and conclusions in the Decision are but a summary of erroneous conclusions to which exceptions have hereinabove been taken, Union, in support of this Exception, refers to its statements under the previous Exceptions, and points out in summary that (a) the test upon which the Presiding Examiner bases his conclusion is without sanction in law, fact, precedent or reason. (b) neither the navigability of the Black River nor the conclusion that it is part of the navigable waters of the United States has been shown, and (c) the conclusions of the Presiding Examiner with [142] respect to the effect produced by the Taum Sauk Project are contrary to the great weight of the evidence herein. Moreover, inasmuch as the findings and Decision of the Presiding Examiner herein are unsupported by the Record, such Decision (if permitted to stand) will deprive Union of its property rights without due process of law in contravention of the constitutional rights guaranteed Union by the Fifth Amendment to the Constitution of the United States.

The other chief objection to the passages quoted for this Exception pertains to the announcement by the Presiding Examiner that, in view of his conclusions on navigable effect, he found it unnecessary to pass upon the question concerning the legal effect which the interstate flow of power would have on the Commission's licensing jurisdiction. To this we have no exception. However, between this page 14 of the Decision and page 18 thereof, the Presiding Examiner apparently reversed himself because on page 18, as the thirty-second and last "additional finding and conclusion", he finds that the Taum Sauk Project will affect the interests of interstate or foreign commerce because it will be used for the development of power to supply outstate markets. If additional finding 32 is meant to provide an "additional" ground for the Commission to assume licensing jurisdiction of the Taum Sauk Project, Union refers to pages 26 through 32 of its Brief herein and adopts the statement therein contained to show that the question of interstate flow of power has nothing to do with the question of the Commission's licensing jurisdiction. However, if as would be indicated by the passages of the Decision quoted under this Exception, the Presiding Examiner did not intend that additional finding 32 should provide an "additional" ground for the Commission to assume licensing jurisdiction of the Taum Sauk Project, it should be deleted from the Decision as immaterial to the instant proceeding—which it most certainly is.

### SUPPORTING REFERENCES

Fifth Amendment to the Constitution of the United States.
All previous supporting reasons and references.
Union's Brief, pp. 26–36.

## [143] Exception No. 23

### DECISION, PAGE 15

Additional Finding and conclusion (6).

> "The Black River, from its mouth to its confluence with the East Fork, is a navigable water of the United States."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exception 3.

## EXCEPTION No. 24

### DECISION, PAGE 15

Additional finding and conclusion (8).

> "Union Electric has filed application for license and construction is now under way on project works of the Taum Sauk Project, except those which will affect the East Fork at the site of the lower dam."

### SUPPORTING REASONS

Union excepts to that portion of additional finding No. (8) which states that Union has filed an application for a license for the Taum Sauk Project because such statement is gratuitous and immaterial to this proceeding and might well be considered prejudicial to Union's position herein.

## EXCEPTION No. 25

### DECISION, PAGE 15

Additional finding and conclusion (11).

> "The dam for the lower pool of the project will have a free crest spillway capable of discharging 70,000 cubic feet per second when the water surface is 763 feet above mean sea level and 80,000 cubic feet per second at water surface elevation of 764 feet above mean sea level."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exception 2.

[144]

## EXCEPTION No. 26

### DECISION, PAGE 17

Additional findings and conclusions (23), (24) and (25).

> "During each and every impoundage of water in the lower pool from streams above, the stage and flow of the East Fork and of the Black River from its confluence with the East Fork downstream to the Annapolis gage

and below would be reduced, the amounts depending on the inflow and the percentage thereof retained for storage."

"During each and every impoundage of water in the lower pool from streams above, the stage at Lesterville gage would be reduced by 0.8 to 3.7 feet."

"During each and every impoundage of water in the lower pool from streams above, the stage at Annapolis gage would be reduced by 0.1 to 0.5 feet, depending on the inflows and the portions retained."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exception 16.

## EXCEPTION No. 27

### DECISION, PAGE 17

Additional finding and conclusion (26).

> "At times of inflows in excess of 2,000 to 2,800 cubic feet per second from streams above into the Taum Sauk lower pool and under the proposed method of operation of project works, the stage and flow of the East Fork below the dam and of the Black River from its confluence with the East Fork downstream to the Annapolis gage and beyond, would be changed from the stage and flow that would exist under natural conditions, sometimes there being an increase in stage and flow and at other times there being a decrease in stage and flow depending on the operating phase of the Taum Sauk Project works."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exceptions 16 and 17.

[145]

## EXCEPTION No. 28

### DECISION, PAGE 17

Additional finding and conclusion (27).

> "At times of inflows of 9,000 cubic feet per second and above, from streams above into the Taum Sauk lower pool, generation at the project works would cause an increase of about 1 foot in stage at the Annapolis gage on the Black River."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exceptions 16, 17 and 18.

## EXCEPTION No. 29

### DECISION, PAGE 17

Additional findings and conclusions (28) and (29).

> "Under conditions of the lower pool being full, the sluice closed, and average flow in the East Fork and Black River, a generating cycle at full load for 8 hours at the Taum Sauk Project would cause increase in stages as follows: 7.0 feet below the dam, 5.7 feet at Lesterville gage, and 3.4 feet at the Annapolis gage."
>
> "An abrupt release of water through the Taum Sauk sluiceway during a low flow period, assuming no operation of project works, would cause increase in stages about as follows: 5.5 feet below the dam, 4.4 feet at Lesterville gage and 2.2 feet at Annapolis gage."

### SUPPORTING REASONS AND REFERENCES

These findings assume conditions produced by "human or mechanical failure". In support of this exception: see Supporting Reasons to Exception 19, *supra*.

## EXCEPTION No. 30

### DECISION, PAGE 18

Additional finding and conclusion (30).

> "An emergency operation of Taum Sauk Project would cause a change in stage and flow of Black River from its confluence with the East Fork and below to Annapolis gage and below if the flows are of large magnitude."

### SUPPORTING REASONS

All supporting reasons under Exception 18.

## EXCEPTION No. 31

### DECISION, PAGE 18

Additional finding and conclusion (31).

> "The proposed Taum Sauk Project will be capable of affecting, and will affect the navigable capacity of the Black River downstream from its confluence with the East Fork to the Annapolis gage and beyond, thereby affecting the interests of interstate or foreign commerce."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exception 22.

## EXCEPTION No. 32

### DECISION, PAGE 18

Additional finding and conclusion (32).

> "The proposed Taum Sauk Project will be constructed, operated and maintained for the development of power to supply markets not only in Missouri but also in the State of Illinois, thereby affecting the interests of interstate or foreign commerce."

### SUPPORTING REASONS AND REFERENCES

All supporting reasons and references under Exception 22.

## Exception No. 33

### DECISION, PAGE 18

"ORDER

"Wherefore, It Is Ordered, subject to review by the Commission on appeal pursuant to its Rules of Practice and Procedure that Union Electric Company is required to obtain a license for its proposed Taum Sauk Project works, pursuant to the provisions of the Federal Power Act and the Commission's Rules of Practice and Procedure."

### SUPPORTING REASONS AND REFERENCES

In support of its exception to the Presiding Examiner's Order herein, Union refers to, and reiterates, all of its statements hereinabove made.

Also, in summary, Union observes that it is inconceivable that one could seriously believe or hold that the applicable law intends or requires the Commission to assume licensing jurisdiction of Union's Taum Sauk Project. To appraise such holding one need only place the facts of Taum Sauk in register with the governing law.

Stated briefly, the court decisions which are controlling on this question have announced the applicable law to be that the Commission (under Section 4(e) and 23(b) of the Federal Power Act) may require a license for a project occupying non-navigable waters *only when* it has been affirmatively shown that the operation of such project works will necessarily and substantially affect the navigable capacity of downstream navigable waters when such project is operated in its normal and ordinary manner.

The facts of Taum Sauk are briefly, that the Project will be built on and near an admittedly non-navigable stream. The first and only impoundment of water behind the dam located in the non-navigable stream will have a very temporary and minor effect on the flow of downstream waters. After the initial impoundment, the project will be operated and maintained with only the amount of water initially impounded.

This same quantity of water will be used over and over again without producing a [148] downstream effect—substantial or otherwise. In fact, after the initial impoundment, all of the natural flows feeding into the stream above the dam will be passed through or over the dam so that the flow conditions will be as they would be if the dam were not in existence.

Placed in such register, the rational conclusion is manifest: There is no basis in law or in fact which would compel or countenance the assumption of licensing jurisdiction of the Taum Sauk Project by the Commission.

## PROPOSED FINDINGS AND CONCLUSIONS

The Additional Findings and Conclusions of the Presiding Examiner numbered (1) to (5) inclusive, (7), (9), (10), and (12) to (21) inclusive, (Decision, pp. 14–16) are adopted. In addition the following findings and conclusions are proposed:

1. The East Fork of the Black River and its tributary, Taum Sauk Creek, are non-navigable streams from their sources to their mouths.

2. The East Fork of the Black River empties into the Black River about four miles below the project area.

3. No State or Federal public lands or reservations will be occupied, flooded or overflowed by construction, operation or maintenance of the proposed Taum Sauk project.

4. The dam will have a free crest and will contain sluiceways to be used to discharge the natural flows of the East Fork and Taum Sauk Creek at the damsite after the impoundage of the lower pool.

5. The lower pool will have a surface area of about 395 acres and a volume of 6,350 acre-feet of water.

6. There will be one impoundage of the water in the lower pool after which all of the natural flows into that pool from the East Fork and Taum Sauk Creek will be passed over or through the dam and downstream.

[149] 7. The one impoundage of the water in the lower pool will cause only one temporary (48 hours to 63 days depending on natural flows) reduction in the stage and

flow in the Black River below the mouth of the East Fork.

8. During the 18 years of record the stream flow at the damsite has averaged 105 cubic feet per second, has been less than 2,000 cubic feet per second more than 99½ per cent of the time, and has exceeded 7,000 cubic feet per second on only three occasions.

9. The maximum discharge capacity of the sluiceways to be installed in the proposed dam will range from 2,000 to 2,800 cubic feet per second.

10. The sluiceways to be installed in the proposed dam will be capable of discharging the combined, natural flows of the East Fork and Taum Sauk Creek simultaneously more than 99½ per cent of the time.

11. Natural flow in excess of the capacity of the sluiceways will pass over the free crest of the dam which will have a discharge capacity in excess of 70,000 cubic feet per second, which is well in excess of any recorded flow.

12. Normal and usual operation of the plant would include pumping up to 4,350 acre-feet of water from the lower pool to the upper pool, utilizing for this purpose off-peak, steam-generated, electric power and energy to drive the pump-turbine units operated as pumps, thereby storing such electric power and energy.

13. Normal and usual operation of the plant would also include discharging from the upper pool into the lower pool an amount of water up to the 4,350 acre-feet stored in the upper pool through the pump-turbine units, operating as turbines, thereby releasing the stored power and energy.

14. Normal and usual operation of the plant would include maintenance, as a normal condition, of a full upper pool (4,350 acre-feet), and a lower pool with [150] sufficient storage capacity therein to absorb all of the discharge from the upper pool without the necessity of passing any of said discharge over and through the dam.

15. Normal and usual operation of the proposed plant would not include a discharge of the water stored in the upper pool into a full lower pool or on top of a flood flow in the lower pool.

16. There is evidence in this proceeding disclosing that the Corps of Engineers, Department of the Army, has considered the proposed Taum Sauk project works and the method of operation thereof and has determined that construction and operation of the project would have no appreciable effect on either navigation on the Black River or the Clearwater Reservoir Project located about 30 miles below the proposed Taum Sauk project.

17. There is no evidence in this proceeding disclosing that normal operation and maintenance of the proposed Taum Sauk project would substantially and inevitably affect the navigable capacity of the navigable waters of the United States.

18. Construction, operation and maintenance of the proposed Taum Sauk project would not affect the interests of interstate and foreign commerce.

19. Construction, operation and maintenance of the proposed Taum Sauk project would not affect Federal public lands or reservations.

## Proposed Order

Wherefore, the Commission having caused an investigation to be made of the proposed Taum Sauk Project of Union Electric Company, and having found as a result of such investigation that the said Taum Sauk Project will not affect the interests of interstate or foreign commerce, nor any public lands or reservations,

It Is Ordered that Union Electric Company shall be permitted to construct, operate and maintain the Taum [151] Sauk Project upon compliance with applicable state laws.

Respectfully submitted.

(S) Charles J. Dougherty,
(S) Duane A. Patterson,
*315 North Twelfth Boulevard,*
*St. Louis 66, Missouri,*
*Attorneys for Union Electric Company.*

St. Louis, Missouri, *January 8, 1962.*

---

## Before the Federal Power Commission

Before Commissioners: Joseph C. Swidler, Chairman; Howard Morgan, L. J. O'Connor, Jr., Charles R. Ross and Harold C. Woodward

*Union Electric Company Docket No. E-6927*

*Opinion and Order Upon a Declaration of Intention—Issued April 19, 1962*

### Opinion No. 356

Ross: *Commissioner.* The Commission is presented with the question whether or not a license is required under Part I of the Federal Power Act for the construction of a pumped storage, hydroelectric generating project upon a non-navigable tributary of an interstate navigable stream. The Union Electric Company (Union) proposes to build such a project, known as the Taum Sauk project, to develop 350,000 kw of peaking power for its interstate system by damming the East Fork of the Black River at its confluence with Taum Sauk Creek in Reynolds County, Missouri.

[152] The project consists of a man-made upper pool on top of a mountain, at 1515 to 1625 ft. above sea level, capable of holding 4,350 acre feet of water. The upper pool is connected with two 175,000 kw generating-pumping turbines at 750 ft. elevation by a 6,400 ft. pressure tunnel and conduit. An open, tail water channel connects this plant with the adjoining lower pool which is created by a 60-foot high dam across the East Fork.

The dam spillway is at 750 ft. above sea level. It is planned to maintain the water level at 734 ft., there being 4,350 acre feet capacity between 734 and 750. During the project's eight-hour maximum 350,000 kw generating cycle, water from the upper pool at an average rate of 6,800 cfs will enter the lower pool. During the 11-hour pumping cycle, which requires an average of 392,000 kw, between 3,750 and 4,900 cfs will be pumped into the upper pool.

At 715 ft.—on the dam—there will be sluice gates capable of discharging 2,000 to 2,800 cfs, depending on the level of water behind the dam, into the natural stream bed of the East Fork. It is contemplated that, after the initial impounding of water, all of the natural flow into the lower pool will be released through the sluice gates. Because of the varying inflow and constantly changing head of impounded water above the gates, the sluices would require continual adjustment to permit the natural flow and only the natural flow to pass. But, absent mechanical or human failure or a change in the operation, it would be possible to so control the flow except in periods of high water.

The East Fork is a flashy, non-navigable stream with recorded flows from less than one cfs to over 33,000 cfs, its estimated average flow at the proposed dam site being 105 cfs. The Black River is navigable from its confluence with the East Fork, four miles below the proposed dam site, and flows interstate, joining the White River in Arkansas.

All the basic facts in the record concerning the proposed project and its effect upon water resources related to it were stipulated. From the facts, as stipulated, the ex- [153] aminer found that the East Fork of the Black River is a non-navigable stream over which Congress has jurisdiction under the commerce clause. He found further that the project, under contemplated normal operation, would have an inevitable effect upon the navigability of the Black River during periods of extreme flows and that it created a capability to affect radically the navigable capacity of the Black River at any time. For these reasons he ruled that the project had to be licensed, citing *Citizens Utilities Co.* v. *F.P.C.*, 279 F. 2d 1 (1960) and *Carolina Aluminum Co.*, 19 F.P.C. 704 (1958).

Section 23(b) of Part I of the Federal Power Act which concerns the licensing of projects on non-navigable streams reads in pertinent part as follows:

> * * * Any person association, corporation, State, or municipality intending to construct a dam or other project works across, along, over, or in any stream or part thereof, *other than those defined herein as navigable waters, and over which Congress has jurisdiction under its authority to regulate commerce* with foreign nations and among the several States shall before construction file declaration of such intention with the Commission, whereupon the Commission shall cause immediate investigation of such proposed construction to be made, and *if upon investigation it shall find that the interests of interstate or foreign commerce would be affected by such proposed construction* such person, association, corporation, State or municipality shall not construct, maintain, or operate such dam or other project works until it shall have applied for and shall have received a license under the provisions of this Act. If the Commission shall not so find, and if no public lands or reservations are affected, permission is hereby granted to construct such dam or other project works in such stream upon compliance with State laws. [41 Stat. 1075, 49 Stat. 846; 16 U.S.C. 817] (Emphasis supplied.)

This subsection deals exclusively with projects to be located on non-navigable streams. A license is required for such a project only if the Commission finds (1) that [154] Congress has jurisdiction over the non-navigable stream under its commerce powers and (2) that the proposed construction will affect the interests of interstate or foreign commerce. We will take these points up in order.

### THE JURISDICTION OF CONGRESS OVER THE STREAM

We reach the question of whether or not the construction of the Taum Sauk project affects the interests of interstate commerce only if we first determine that Congress has jurisdiction over the East Fork of the Black River. The scope of Congress' jurisdiction over the water resources of the nation has been a matter of continuing controversy since the turn of the last century. We think it important, therefore, first to determine the scope of that jurisdiction under the commerce clause, in the light of the history of the Federal Power Act of 1920.

Before the turn of this century, private interests began to recognize the advantages to be derived from harnessing the nation's water power to produce large amounts of inexpensive electric energy. Since most of the best dam sites to accomplish this purpose were either on navigable waters, on public lands or on forest lands of the United States, an Act of Congress was required in order to develop the power. More and more bills were introduced in Congress to permit unhampered, private development of the nation's water resources, until in 1908, the conservationists, led by President Theodore Roosevelt, announced that they would attempt to block all such legislation that resulted in a free grant in perpetuity of the nation's water resources to private interests. The long and often bitter fight which ensued resulted in the passage in 1920 of the Federal Water Power Act, now Part I of the Federal Power Act.

The jurisdiction of Congress over navigable waters was well established prior to 1900 as an incident of its commerce powers, although there was dispute for some years over what constituted "navigation". *United States* v. *Appalachian Power Co.*, 311 U.S. 377 (1940), reversing 107 F. 2d 769 (4th Cir., 1939); *Wisconsin Public Service Corp.* v. *F.P.C.*, 147 F. 2d 743 (7th Cir., 1945), certiorari denied, 325 U.S. 880.

[155] The private interests attempting to secure favorable water power legislation insisted that Congress' sole jurisdiction over water resources was over those waters actually used for navigation. The conservationists, however, felt that a river system, navigable in part, was a unit from its forest headwaters to its mouth and that Congress had jurisdiction over the whole. In order to justify such broad jurisdiction in the federal government under the law and attitudes then existing, the conservationists pointed out that navigation on the lower reaches of a river system could not be protected and developed unless Congress had jurisdiction over the upper portion to control floods, low water, hydraulic mining, soil erosion and stream pollution.

Based on this reasoning, they felt it within the power of Congress to control the development of the whole river system in the national interest to insure its maximum development for all beneficial public purposes, including domestic and municipal water supply, agricultural and industrial use, the development of power and recreation as well as navigation.

The conservationists received support for their broad concept of jurisdiction when the United States Supreme Court ruled that under the Rivers and Harbors Act of 1890, 26 Stat. 454, Congress had jurisdiction under the commerce clause to prevent construction in a non-navigable river which affected the navigable capacity of downstream waters. *United States* v. *Rio Grande Dam and Irrigation Co.*, 174 U.S. 690 (1899). Using the rationale of the Supreme Court in that case, the Special Congressional National Waterways Commission, in its final report in 1912, concluded that the authority of Congress reaches to the sources of every stream (page 46). On this basis, the Waterways Commission further declared that Congress might withhold its permit for construction in or over streams, either navigable or non-navigable, or might grant its permit with conditions (pages 47, 48). The Commission stated:

> * * * With the increasing unity of our national life and the growing necessity of securing for human needs the maximum beneficial use of the waters of every stream it will become increasingly necessary to treat every stream with all its tributaries as a unit. [156] In the nature of the case so comprehensive a policy could be successfully administered only by the Federal Government, and consequently the eventual desirability of Federal control is easy to predict (p. 52).

The legislative history of the Federal Water Power Act demonstrates the struggle between the two principal competing forces, the one desirous of using the power potential of the nation's water resources with as little restriction as possible and, therefore, attempting to limit the scope of Congress' exercise of jurisdiction over streams; the other struggling to preserve all possible water resources for their most beneficial use by present and future generations and, therefore, attempting to exercise Congress' jurisdiction to the full.

The definition of navigable waters in the House amendment to Senate Bill 1419, 65th Congress, 2nd session, 1918, was broad enough to include the waters of a river system from its mouth to its source, thereby including the non-navigable tributaries of navigable waters. It provided:

> "Navigable waters" means all streams or parts of streams, and other bodies of water or parts thereof, over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several states.

The committee of conference, however, working under tremendous pressure in the 3rd session of the 65th Congress, proposed the following definition:

> That the term "navigable waters" as used in this Act and as applied to streams shall be construed to include only such streams or parts of streams as are in their ordinary natural condition used for the transportation of persons or property in interstate or foreign commerce, or which through improvement heretofore or hereafter made have been or shall become usable in such commerce.

The new definition was limited to streams navigable in fact, and indeed, excluded the shoals and falls which held the major water power potential. This fact made the definition unacceptable to the conservationists and resulted [157] in the La Follette filibuster in the closing hours of the session on March 4, 1919, which postponed any water power legislation until the next Congress.

The 66th Congress, by compromise, achieved the final definition, which is as follows:

> "Navigable waters" means those parts of streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several states, and which either in their natural or improved condition notwithstanding interruptions between the navigable ports of such streams or waters by falls, shallows, or rapids com-

> pelling land carriage are used or suitable for use for the transportation of persons or property in interstate or foreign commerce, including therein all such interrupting falls, shallows, or rapids, together with such other parts of streams as shall have been authorized by Congress for improvement by the United States or shall have been recommended to Congress for such improvement after investigation under its authority.

It is most significant, however, that when the definition of "navigable waters" was changed by the conference committee of the 65th Congress to exclude non-navigable tributaries, new language *specifically* dealing with the licensing of projects in waters *not* navigable under that definition was added to Section 23 of the proposed Act, which theretofore had dealt exclusively with pre-existing rights. That new language was amended to its final form in Section 23 (b), as set forth above, and clearly manifests Congressional intent to claim its jurisdiction over non-navigable waters as well as waters navigable under the definition. The viewpoint of the conservationists thus prevail. As it pertains to this case, the question then becomes: Is the non-navigable East Fork of the navigable Black River a stream over which Congress has jurisdiction under the commerce clause?

The East Fork is one of three tributaries which join to form the Black River. Some of the waters of each of the three tributaries originate in the Clark National Forests [158] which lies approximately seven air miles to the north and 5½ miles to the west of the proposed dam site of the Taum Sauk project. Fourteen and one-half stream miles south of the proposed dam site is the head of the existing Clearwater Dam flood control pool on the Black River.

The Clark National Forest was authorized by the National Forest Reservation Commission on August 30, 1933, under the provisions of the Act of March 1, 1911 (36 Stat. 961), which authorizes and directs the Secretary of Agriculture to locate and recommend for purchase forest land within the watersheds of navigable streams as in his judgment may be necessary to the regulation of the flow of navigable streams or for the production of timber. The Clearwater Flood Control Dam was authorized by Act of June 25, 1938 (52 Stat. 1215), "for the benefit of navigation and the control of destructive floodwaters and other purposes."

Congress has, then, already exercised its commerce powers over water resources in connection with the river system whose source is upstream from the proposed project and which extends interstate to where it joins first the White River and then the Mississippi River in Arkansas and eventually empties into the Gulf of Mexico. The East Fork of the Black River is but a small part of this river system, but one over which we hold Congress has jurisdiction under the commerce clause.

### THE EFFECT OF THE PROJECT UPON INTERSTATE COMMERCE

Having established that Congress has jurisdiction over the stream, we must now determine whether the construction of the proposed project will affect the interests of interstate or foreign commerce. In the past the Commission has limited its investigations in this regard to a determination of whether a proposed project is capable of affecting the navigable capacity of any downstream navigable waters. The presiding examiner in this case similarly limited his decision.

On the basis of the facts stipulated, he found that construction of the proposed project would have an inevitable [159] effect upon the navigable capacity of the Black River during periods of high water; and further that the project would have the capability of substantially affecting that navigability at all times.

Staff counsel urged the presiding examiner to find that the interests of interstate commerce would be affected in another regard. It had been stipulated that the proposed project would use the waters of the East Fork to develop 350,000 kilowatts of peaking power for transmission and utilization in interstate commerce. Staff counsel urged that this effect upon the interests of interstate commerce was sufficient, by itself, to require a license for the Taum Sauk project.

The Examiner stated that he felt it unnecessary to decide the issue thus presented because of his findings concerning effect upon navigable capacity. Although he did not base his decision thereon, he did make the following finding of fact:

> The proposed Taum Sauk Project will be constructed, operated and maintained for the development of power to supply markets not only in Missouri but also in the State of Illinois, thereby affecting the interests of interstate or foreign commerce.

A similar argument was advanced by staff and rejected by the Circuit Court in *United States* v. *Appalachian Power Co.*, 107 F. 2d 769 (4th Cir., 1938), at the same time that that court endorsed a narrow concept of navagability. The Circuit Court was reversed on this latter ground by the United States Supreme Court at 311 U.S. 377 (1940) in a way which made it unnecessary to decide issues presented only in connection with non-navigable streams. This is the first time that the Commission itself has decided the issue, whether an effect on the interests of interstate commerce other than an effect on navigable capacity is sufficient to require the licensing of projects on non-navigable waters under the mandate of Section 23(b).[1] Although it may be technically unnecessary to the [160] decision in this case, an issue of such importance must not be allowed to go unresolved any longer since there can be little doubt that this country in the years ahead will become overwhelmingly more dependent upon the maximum development of its water resources in all their uses.

When in 1919, as discussed *supra*, specific provisions concerning the licensing of projects on non-navigable waters were first added to Section 23, they provided in part:

> * * * if the contemplated improvement is, in the judgment of the commission, desirable and justified in the public interest for the purpose of improving or developing a waterway or waterways *for the use or benefit of navigation in interstate or foreign commerce*, the applicant may receive a license under the conditions with all of the rights and privileges herein provided for streams or parts of streams used for the transportation of persons or property in interstate or foreign commerce

---

[1] In *California Oregon Power Company*, 13 F.P.C. 1, 3, the Commission disagreed with the presiding examiner but did not state the basis for disagreement.

> in their ordinary, natural, or impoved condition. [Emphasis supplied.]

These provisions failed of passage, together with the extremely narrow definition of navigable waters, as a result of the La Follette filibuster previously mentioned. When the next Congress passed the Water Power Act, most significantly all direct reference to navigation was removed from the above language and, instead, it was provided that the Commission shall require a license for a project on a non-navigable stream.

> * * * if upon investigation it shall find that the interests of interstate or foreign commerce would be affected by such proposed construction * * *

Union urges that the term "interests of interstate or foreign commerce" is limited in meaning under Section 23 to "navigable capacity of downstream navigable waters," and that these terms are synonymous as far as the purposes of the Federal Water Power Act are concerned. It points out that this was, in effect, the holding of the Circuit Court in the *Appalachian* case. In light of the explicit change wrought by the amendment to Section 23 noted above and our interpretation of the purposes of the [161] Federal Water Power Act, we cannot agree with Union's contention.

In *First Iowa Coop* v. *F. P. C.*, 328 U.S. 152 (1946), the United States Supreme Court recognized the Federal Water Power Act as "the outgrowth of a widely supported effort of the conservationists to secure enactment of a complete scheme of national regulation which would promote the comprehensive development of the water resources of the nation * * *." (p. 180) It stated further: "That it was the intention of Congress to secure a comprehensive development of national resources and not merely to prevent obstructions to navigation is apparent from the provisions of the Act." (pp. 180–1.)

Contrary to the often suggested thesis that the 1920 Federal Water Power Act was concerned solely with promoting the use of water resources for the single purpose of power development while at the same time protecting navigation, the legislative history and the language of the Act, itself, indicate the broader intent to preserve the nation's water resources not only for power and navigational purposes, but for their most beneficial use, whatever its nature, in the present and the future. The conservationists reasoned that Congress could and should condition the use of the water resources over which it had jurisdiction in connection with its duty to protect and develop commerce to insure comprehensive development and use of these national resources for all "beneficial public uses," such as domestic and municipal supply, agriculture, industry and recreation. They noted that measures for the control of water for the purposes of power and navigation, such as reforestation and control of hydraulic mining, stream pollution and soil erosion, could also benefit these other public uses. Because of the essential nature of the resource, they did not wish it forever committed to the single use of power development, and so they insisted on recapture provisions, to insure that if it is necessary in the public interest to emphasize a different use of a particular water resource in the future, this may be done upon a financial basis which is fair to all.

An example of the foresightedness of the early conservationists is to be found in a matter currently pending be- [162] fore the Commission. Plans are under consideration for a multipurpose project for flood control, irrigation, recreation and 150,000 kw. power development which will inundate a single purpose 24,300 kw project licensed in 1929. The recapture provisions applicable to the early license, which was for a period of less than 50 years, may affect the economics of the proposed project if it is finally authorized.

If there had been any question concerning the broad purposes of the 1920 Act, they were removed by the amendments of 1935. At that time, for instance, all references to "navigation" were removed from Section 7 of the Act and reference to the development of "water resources for public purposes" was added. The Act in its present form clearly reflects the intent to permit the most comprehensive, multiple purpose development[2] of the water resources of the nation which is presently proposed, subject, however, to recapture by the people, at the end of the license period. The Act gives the Federal Power Commission the authority to refuse to license a project that does not make the most comprehensive and best use of the water resources of the region involved.. The constitutional power of Congress to so condition the use of water resources under its jurisdiction was upheld by the Supreme Court in the *Appalachian* case, *supra* at page 399, when it stated:

---

[2] "including recreational purposes," (Section 10 as amended in 1935).

> In our view, it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. By navigation respondent means no more than operation of boats and improvement of the waterway itself. In truth the authority of the United States is the regulation of commerce on its waters. Navigability, in the sense just stated, is but a part of this whole. * * * That authority is as broad as the needs of commerce.

In view of these facts, we cannot hold, as requested by Union that "the interests of interstate commerce" in Section 23 (b) are limited to "effect upon navigable capacity." On the contrary, we hold that the development of power for interstate transmission and use is such an effect [163] upon the interests of interstate commerce within the meaning of Section 23 (b) that a project proposed for that purpose, which is to be constructed in and will utilize nonnavigable waters over which Congress has jurisdiction under the commerce clause, must be licensed.[3] If the water resource is one over which Congress has jurisdiction and if the water resource has the potential of affecting interstate commerce in any manner, it is our duty to license its use to preserve the rights of the people in the resource. In this case, the proposed development of power for interstate transmission and use is sufficient evidence of the East Fork's potential to affect interstate commerce to cause us to require a license, even if it were not shown that downstream navigable capacity will be affected. We concur, however, in the conclusion of the Examiner that the Commission has license jurisdiction because of effect on downstream navigable capacity.

---

[3] The Commission's authority to issue a license for the proposed project on this basis is expressly set forth in Section 4 (e).

History has proved the conservationists of the first years of this century correct and attests to the wisdom of the provisions of the Federal Power Act which preserved the nation's water resources for their most comprehensive and beneficial use in the future while, at the same time, permitting their most comprehensive present proposed use. In a message to Congress on March 1, 1962, the President of the United States stated:

> Our nation's progress is reflected in the history of our great river systems. The water that courses through our rivers and streams holds the key to full national development. Uncontrolled, it wipes out homes, lives, and dreams, brings disaster in the form of floods; controlled, it is an effective artery of transportation, a boon to industrial development, a source of beauty and recreation, and the means for turning arid areas into rich and versatile cropland. In no resource field are conservation principles more applicable. By 1980, it is estimated, our national water needs will nearly double—by the end of the century, they will triple. But the quantity of water which nature supplies will remain almost constant.

[164] The role of the Federal Power Commission in the control and preservation of our national water resources, when their use is proposed for power purposes, is to insure the most comprehensive and best use of those resources for the benefit of all the people of the nation.

We adopt all of the findings of fact and decision of the presiding examiner as modified and supplemented by this decision

*The Commission orders:*

(A) The request for oral argument is hereby denied.

(B) Union Electric Company is required to obtain a license for its proposed Taum Sauk Project works, pursuant to the provisions of the Federal Power Act.

By the Commission.

JOSEPH H. GUTRIDE,
*Secretary.*

## Before the Federal Power Commission

### *Application for Rehearing—May 18, 1962*

In accordance with the rights granted by Section 313 of the Federal Power Act [16 U. S. C., § 825 (1)] and pursuant to Section 1.34 of the Rules of Practice and Procedure of the Federal Power Commission, Union Electric Company ("Union"), Declarant herein, hereby applies for a rehearing in these proceedings. This application for rehearing is filed because the Opinion and Order entered herein by the Federal Power Commission ("the Commission") on April 19, 1962, is contrary to the applicable law and the pertinent facts and is manifestly erroneous for the reasons hereinafter stated.

## [165] STATEMENT OF THE CASE

### DECLARANT

Union is a privately owned corporation which, as a public utility, is engaged, among other things, in the business of generating, transmitting and distributing electric power and energy to the public in its service territories which are located principally in Missouri and to a lesser extent in a small part of Illinois and in a small part of southeastern Iowa.

### THE PROJECT

Union is constructing a pumped-storage project to be known as the Taum Sauk Project. The basic objective of the project is to provide reliable and flexible peaking capacity (i.e., additional power and energy at times of the greatest demand therefor) by the release of water, stored at a higher level, to operate hydraulic generators; such water having been pumped to the higher level by using available electric energy at off-peak times (i.e., when the demand for electric power and energy is significantly less than the available supply) to operate the generators as pumps. Union's Taum Sauk Project will add 350,000 kw of peaking capacity to Union's system capability of approximately 2,300,000 kw.

As a part of such project Union will construct a dam across a non-navigable tributary of the Black River and will impound behind said dam a pool of water (hereinafter referred to as "the lower pool"). Union will also construct an upper pool on top of an adjoining mountain and will connect the two pools with a large tunnel. Reversible pump-turbine units, located at the bottom of the tunnel, will, by using available electric energy during off-peak hours, pump a portion of the water stored in the lower pool through the tunnel into the upper pool. The water will then be stored in the upper pool until additional power and energy is needed to meet peak loads, at which time the water will be released through the tunnel and the pump-turbine units (operating as turbines), thus generating 350,000 kw of peaking power. All of this activity will be confined to the project area which is on and near a [166] non-navigable stream, namely, the East Fork of the Black River. None of this activity will be noticeable immediately below the dam or downstream. In fact, even the first and only impoundment of water behind the dam located in the non-navigable stream will have but a very temporary and minor effect on the flow of downstream waters. After such initial impoundment, the project will be operated and maintained with only the amount of water initially impounded. This same quantity of water will be used over and over again without producing a downstream effect—substantial or otherwise. As a matter of fact, after the initial impoundment, all of the natural flows into the stream above the dam will be passed through or over the dam so that the flow conditions will be as they would be if the dam were not in existence.

The power and energy to be stored at the Taum Sauk Project by operation of the pumps will be transmitted over Union's interconnected transmission system which traverses state lines, and the stored power and energy released at Taum Sauk will be fed back into Union's inter-connected transmission system, so that it is possible that such power and energy may be transmitted across state lines.

No Federal public lands or reservations will be flooded, overflowed, occupied, or in any manner affected by the construction, operation or maintenance of the Taum Sauk project works.

## PRIOR PROCEEDINGS

On February 1, 1960, Union filed with the Commission a Declaration of Intention with respect to the construction of the Taum Sauk Project. The Commission assigned this matter to Presiding Examiner Samuel Binder, and in January, 1961, Mr. Binder received in evidence the Stipulation of Facts which the Commission Staff and Union had previously agreed upon Briefs were thereafter filed, and on December 19, 1961, Presiding Examiner Binder issued his initial Decision (hereinafter usually referred to as the "Decision") in this proceeding. That Decision held that the Taum Sauk Project was subject to the licensing jurisdiction of the Federal Power Commission [167] because said project has the capability of having a downstream effect on the Black River at a point where the Examiner presumed the Black River to be navigable.

Union believes that the Presiding Examiner's Decision is erroneous. Consequently, Union filed with the Federal Power Commission Exceptions to the Presiding Examiner's Decision together with its supporting reasons therefor. At the same time, Union requested an opportunity to present oral argument before the Commission on the subject. On April 19, 1962, the Commission issued its Opinion and Order in this proceeding (hereinafter usually referred to as the "Opinion"). In such Opinion, the Commission (a) denied Union's request for oral argument, and (b) ordered Union to obtain a license for the Taum Sauk Project.

## ARGUMENT

### GENERAL STATEMENT

The issue in this proceeding, simply stated, is whether or not the Commission has licensing jurisdiction of the Taum Sauk Project. This issue must be determined rationally and on the basis of the applicable law rather than on the philosophical basis relied on by the Commission in its Opinion. In fact, it is inconceivable that the Commission's Opinion in this matter should be represented as a legal decision. The great bulk of the Opinion deals with ideological arguments and with a purported historical development of the philosophy of the Federal Water Power Act which is neither accurate nor a legislative history having probative value in these proceedings.

The Commission has based its Opinion that the Commission has licensing jurisdicton of the Taum Sauk Project on two grounds: first, on the fact that the power generated at the Taum Sauk Project will flow in interstate commerce, and secondly, on the Presiding Examiner's conclusion and finding that the project would be capable of having an effect on the downstream navigable capacity of the Black River. The basing of licensing jurisdiction on the former grounds, i.e., the interstate transmission of power—to which is devoted the great bulk of the Commission's Opinion—is contrary to the applicable law. The [168] basing of licensing jurisdiction on the latter grounds herein, i.e., the effect on navigability, is contrary to the law and to the facts in the Record in this proceeding. On neither ground, therefore, is the Commission's Opinion sustainable.

### THE INTERSTATE TRANSMISSION OF POWER

When the Commission holds in its Opinion that its licensing jurisdiction attaches to the Taum Sauk Project because power and energy flowing therefrom will be transmitted over state lines "even if it were not shown that downstream navigable capacity will be affected" (Opinion, p. 9), it announces a position contrary to the applicable law.

While it is known that the Commission Staff has urged such a conclusion in at least two cases (*United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769; and *The California Oregon Power Co.*, 13 FPC 1) (in both of which the contention was rejected), it is doubtful that such a conclusion was ever urged with less substance of material and probative legal force than that on which the Commission's Opinion herein is based. For example, *in this proceeding under Part I of the Federal Power Act*, there is certainly no probative value in: (a) an announcement in 1908 by "the conservationists led by President Theodore Roosevelt" (Opinion, p. 3); (b) a statement by the Special Congressional National Waterways Commission in 1912 (Opinion, p. 4); (c) the contents of Bills introduced but not enacted into law by the 65th Congress (Opinion, pp. 4–5); (d) an unidentified "matter currently pending before the Commission . . . for a multi-purpose project" (Opinion, p. 8); or (e) a speech by President Kennedy on March 1, 1962 (Opinion, p. 10).

The Federal Water Power Act (which is now Part I of the Federal Power Act, 16 U. S. C. §§ 791 (a)-823), including Section 23 (b) thereof (16 U. S. C., § 817), was enacted into law in 1920 by the 66th Congress. If one were to undertake to construe such legislation he would not—and could not legally—base a valid construction on the grounds relied upon by the Commission in this proceeding and noted in the preceding paragraph hereof—[169] none of which even rises to the level of admissible legislative history.

In this case, however, there is no warrant or reason for recourse to any construction aids, for the law in this field is clear. It has been enunciated by the Courts and followed by the Commission for many years. In fact, in *United States* v. *Appalachian Electric Power Co.* (107 F. 2d 769; reversed on other grounds, 311 U.S. 377), when the Commission Staff was claiming project-licensing jurisdiction on the basis of an interstate transmission of power and energy, the Circuit Court of Appeals said:

> "We do not think this broad construction of the Act based upon the interstate commerce power, to the extent that it is dissociated from navigation, is tenable either on the basis of statutory construction or constitutional authority" (107 F. 2d 769, at 793).

In that same case and in response to a claim for licensing jurisdiction because of interstate transmission, with particular reliance on the 1935 amendment of the Federal Power Act, the Circuit Court of Appeals said:

> "It is contended that the 1935 amendment to section 23 supports the construction contended for.
>
> * * * * * * *
>
> We do not attach the significance to the amendment claimed for it" (107 F. 2d 769, at 794-95).

And again at page 796 in the *Appalachian* case the Circuit Court of Appeals stated:

> "In their briefs counsel for the Commission have now called to our attention certain earlier legislative history of the Act in support of their contention that the proper construction of section 23 was to give the Commission

> full jurisdiction with respect to both navigable and non-navigable streams whenever any interests of interstate commerce would be affected; but we are not persuaded that this earlier history tends to support that view.
>
> * * * * * * * *
>
> We therefore cannot adopt the plaintiff's construction of section 23 that the Commission has jurisdic-[170]*tion over non-navigable streams under the interstate commerce clause irrespective of the interests of navigation. (107 F. 2d 769, at 796) (Emphasis by the Court).

The foregoing represents the law applicable to this proceeding. It controls the issue herein and it controls the Commission; for the Commission, as well as Union, must comply with the applicable law.

Moreover, it is significant that the Commission in its Opinion recognizes that:

> "In the past the Commission has limited its investigations in this regard to a determination of whether a proposed project is capable of affecting the navigable capacity of any downstream navigable waters. The presiding examiner in this case similarly limited his decision" (Opinion, p. 6).

The Commission thus admits that the basis for licensing jurisdiction which it here asserts has never before been considered as a valid basis for licensing jurisdiction. As we have seen, the Court has rejected such a contention. In addition, the Commission has rejected it; for in *The California Oregon Power Co.* (13 FPC 1) the Commission itself held that the Presiding Examiner's claim for licensing jurisdiction on the basis of the interstate transmission of power was "*unwarranted* under the Federal Power Act" (13 FPC 1, at 3) (Emphasis supplied).

*Never* in over 40 years of administration of the Federal Power Act has any court or the Commission held that the Commission had licensing jurisdiction of a project on a non-navigable stream because an interest of interstate commerce, other than the impairment of navigable capacity of navigable waters or the occupancy of Federal lands, was shown. It is a well-established legal principle that long-indulged administrative interpretations such as is here in issue—particularly interpretations and practices of the agency charged with the responsibility for administering the Act—are entitled to great weight in questions of construction of such Act, and should not be overturned unless erroneous. The many declarations of in- [171] tention which have been filed and under which projects have been built without licensing jurisdiction illustrate the interpretation which the courts and the Commission have placed on Section 23(b) specifically and on the Federal Power Act generally for many years. Moreover, this historical interpretation—far from being erroneous—accords with reason.

Contrasted with the rational basis of the historical interpretation is the position of the Commission, as stated in its Opinion, to the effect that the term "interests of interstate or foreign commerce" as used in Section 23(b) of the Federal Power Act is unrelated to navigable or non-navigable waters. In addition to the fact that the Commission's position on this question is contrary to controlling legal precedents, it also assaults fundamental concepts of rationalization, for, if Section 23(b) were to be construed as the Commission's Opinion herein would have it construed, a thermal plant totally dissociated from streams, and generating power for interstate transmission would logically be subject to licensing except for the fact that it was not situated along a non-navigable stream over which Congress has jurisdiction. Obviously, therefore, the determining factor would become the mere occasion or accident of location rather than a causal or substantive connection with the effect. Indeed, the irrationality of such a contention is manifest, and undoubtedly accounts for the rejection of such contention whenever it has heretofore been urged. Moreover, the effect on interstate or foreign commerce which results from the interstate transmission of power and energy is dealt with by Part II (16 U.S.C., §§ 824–824(h)) of the Federal Power Act, not by Part I which controls the issue herein.

When Congress passed the Federal Water Power Act (now Part I of the Federal Power Act) in 1920, it delegated to the Commission power over the streams and bodies of water, and not power over other forms of interstate commerce. In fact, it was not until 1935 when Congress enacted Part II of the Federal Power Act that the Commission was given jurisdiction over the interstate transmission of electric energy and public utility companies engaged therein. The 1935 enactment of Part II [172] did not and does not make the interstate transmission of energy a consideration in proceedings related to the Commission's licensing jurisdiction under Part I.

Basic to an understanding of the issue herein and the law applicable thereto is a recognition of this difference between (a) the Congressional authority exercised in Part I of the Federal Power Act and (b) the Congressional authority exercised in Part II thereof.

Admittedly, the Congress has authority over the interstate transmission of electric power and energy, and the Congress has effectively exercised such authority by subjecting such transmission and the companies engaged therein to regulation under Part II of the Federal Power Act.

On the other hand, when, as here, Federal lands are not involved, Part I invokes the Congressional authority over water power and exercises such authority by subjecting to Commission-licensing (1) all water power projects on navigable waters and (2) those projects on non-navigable waters which, in their normal operation, have an inevitable and substantial effect on navigable waters. Absent a Federal proprietary interest, the Commission's licensing jurisdiction under Part I of the Federal Power Act is thus related to navigable waters—either directly or by effect. Such limitation on the Commission's licensing jurisdiction is necessary because such is the limitation on Congressional authority over waters.

Moreover, in the Commission's attempt to enlarge the scope of such jurisdiction to the broad limits of its Opinion, it is most significant that every case relied upon by the Commission in support of its theory (viz., that the interstate transmission of power affords a basis for the invocation of its licensing jurisdiction) is a case involving navigable waters of the United States. Certainly, we do not challenge the fact that the United States, and consequently the Congress, has plenary power over the navigable waters of the United States. However, the broad language used by the courts in the cases involving navigable waters cannot be used to support an assertion of jurisdiction over project works located on non-navigable waters.

[173] With respect to non-navigable waters, the courts have consistently held that the Congress has only protective—*not plenary*—authority. For instance, in *United States* v. *Rio Grande Dam & Irrigation Co.*, 174 U.S. 690, the United States Supreme Court said:

> "It does not follow that the courts would be justified in sustaining any proceeding by the attorney general to restrain any appropriation of the upper waters of a navigable stream. The question always is one of fact, whether such appropriation substantially interferes with the navigable capacity within the limits where navigation is a recognized fact. In the course of the argument, this suggestion was made, and it seems to us not unworthy of note, as illustrating this thought. The Hudson river runs within the limits of the state of New York. It is a navigable stream, and a part of the navigable waters of the United States, so far at least as from Albany southward. One of the streams which flows into it, and contributes to the volume of its waters, is the Croton river, a non-navigable stream. Its waters are taken by the state of New York for domestic uses in the city of New York. Unquestionably, the state of New York has a right to appropriate its waters; and *the United States may not question such appropriation, unless thereby the navigability of the Hudson be disturbed.* On the other hand, if the state of New York should, even at a place above the limits of navigability, by appropriation for any domestic purposes, diminish the volume of waters, which flowing into the Hudson, make it a navigable stream, to such an extent as to destroy its navigability, undoubtedly the jurisdiction of the national government would arise, and its power to restrain such appropriation be unquestioned; and, within the purview of this section, it would become the right of the attorney general to institute proceedings to restrain such appropriation" (174 U.S. 690, at 709) (Emphasis added).

And in *United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769, the Fourth Circuit Court of Appeals said:

> " . . . over non-navigable waters within a state, where the riparian rights are not owned by the gov- [174] ernment itself, the only authority or jurisdiction of Congress flows from the interstate commerce power which, with respect to rivers and streams *as such*, is limited to the protection of navigation of other streams" (107 F. 2d 769, at 794) (Emphasis by the Court).

The two immediately preceding quotations are the controlling and unchallenged law regarding Federal authority over non-navigable streams. Simply stated, Congressional jurisdiction on non-navigable streams is limited to that necessary of the protection of commerce on navigable streams.

Thus is also high-lighted the fundamental error of the Commission when it states in its Opinion (p. 3):

> "A license is required for such a project only if the Commission finds (1) that Congress has jurisdiction over the non-navigable stream under its commerce powers and (2) that the proposed construction will affect the interests of interstate or foreign commerce. We will take these points up in order."

In addition to such infirmities in the above-quoted statement as we have previously mentioned, we note the basic error of the Commission in treating its two enumerated points as independent factors. Further, having decided to treat them as independent elements, the Commission reverses their necessary order, for, as we have seen, it is *only* if the proposed construction affects the interests of interstate or foreign commerce (Commission's Point No. 2) that the Congress has jurisdiction over the non-navigable stream (Commission's Point No. 1). Or, in terms of Part I of the Federal Power Act, the licensing jurisdiction of the Commission attaches to the project on a non-navigable stream *only* if such project has an inevitable and substantial effect on navigable capacity. (The effect requisite to invoke the licensing jurisdiction of the Commission is dealt with later in this Application.)

As an additional point, it should be noted that the Commission erred when, undertaking to determine whether or not Congress has jurisdiction over a non-navigable stream under the commerce power of the United States [175] Constitution, the Commission stated (Opinion, pp. 3-6) without probative authority: (1) that Congress has authority over entire river systems without regard to questions of navigability provided any part of such system is navigable; (2) that by passage of the Federal Power Act the Congress exercised such authority; and (3) that by legislating under its commerce power with regard to any portion of a river system, the Congress has thereby asserted jurisdiction over the entire river system.

In any event, and regardless of the extent of Congress' constitutional jurisdiction over commerce, there is nothing in the Federal Water Power Act or in the 1935 amendments thereto whereby Congress delegated to the Commission jurisdiction over commerce generally. Congress limited the delegation to streams and bodies of water to which the interstate commerce power extends, and to projects occupying Federal public lands. If, as here, the project will be located on a non-navigable stream and will not produce an inevitable and substantial effect on navigable waters and will not occupy Federal lands, there is nothing in the Federal Power Act which makes the project subject to the Commission's licensing jurisdiction on the ground that some other branch of the commerce power may be involved because no other area of commerce has been brought under the Commission's licensing jurisdiction.

Also, if the Congress had intended to attach licensing consequences in Part I of the Federal Power Act to the interstate transmission of energy, there is no reason to suppose that it would not have so said in language equally clear to that used in Part II of the Act, which regulates such interstate transmission. If the Commission would now so extend the scope of the Act, it would in effect, be usurping the legislative authority of the Congress.

### THE EFFECT ON NAVIGABILITY

As we have shown, the applicable law does not permit the Commission to assert its licensing jurisdiction on the grounds of the interstate transmission of power or on the grounds of any effect on interstate or foreign commerce other than an effect on navigable waters. Therefore, since [176] Union's

Taum Sauk Project will admittedly be situated on a nonnavigable, stream, the only issue determinative in this proceeding is whether or not the construction, operation and maintenance of Union's Taum Sauk Project will have such an effect on the downstream navigable capacity of navigable waters as to subject such project to the Commission's licensing jurisdiction. With respect to this question, the law is clear that the Commission has licensing jurisdiction of those projects on nonnavigable waters when, and *only* when, the effect produced by the normal operation of such project is both substantial and inevitable. The facts in the Record in this proceeding make it abundantly clear that there will be no such substantial and inevitable effect produced by the normal operation of the Taum Sauk Project.

If the Commission is to have licensing jurisdiction of the Taum Sauk Project under Part I of the Federal Power Act, the normal operation of the project must produce, *inter alia*, a substantial effect on downstream navigable waters. In *United States* v. *Rio Grande Dam & Irrigation Co.*, the United States Supreme Court stated:

> "The question is always one of fact, whether such appropriation *substantially* interferes with the navigable capacity within the limits where navigation is a recognized fact" (174 U.S. 690, 709). [Emphasis added.] [1]

In accordance with this applicable law, the "substantial effect" test has been applied consistently by the Commission in making determinations under Section 23(b), the Commission having asserted jurisdiction when the downstream effect was serious appreciable, measurable, substantial, or pronounced (*Citizens Utilities Co.*, 21 FPC 233; *Niagara Mohawk Power Corp.*, 10 FPC 715; *Presque Isle County Electric Cooperative Assn.*, 8 FPC 687), and having denied jurisdiction when only a slight effect or slight possibility of effect was shown (*Brazos River Conservation and Reclamation District*, 10 FPC 696; *Clam River Dam Co.*, 2 FPC 953). Moreover absent occupancy of Federal lands or navigable waters licensing jurisdiction has *never* vested in the Commission under Sections 4(e) or 23 (b) where there has been less than a substantial interference with navigable capacity.

---

[1] While the test used in the *Rio Grande* case to determine whether or not waters are navigable is no longer limited to the instances where navigation is a recognized fact, the "substantial interference" test remains valid and should be applied in this case.

Also, if the licensing jurisdiction of the Commission is to attach to a project on a non-navigable stream, the substantial effect on navigable waters to be produced by such project must, *inter alia* inevitably result from the construction and operation of the project. The test is not whether the effect will probably result, or will possibly result, or is capable of resulting. Rather the test, as stated by the Circuit Court of Appeals in *United States* v. *Appalachian Electric Power Co.*, is whether the substantial effect will be the "necessarily or practically certain and not merely the probable result" (107 F. 2d 769, at 790). Further, as explained at some length in Union's Brief in this proceeding and in its Exceptions to the Presiding Examiner's Decision herein, the Commission's licensing jurisdiction has *never* been held by a court or by the Commission to apply in a situation where the substantial effect produced was other than the inevitable or actual result of the ordinary, normal operation of the project.

Finally, if the Commission is to have licensing jurisdiction of a project on a non-navigable water, the substantial and inevitable effect on navigable waters produced by such project *must* be produced in the normal, ordinary operation of such project. In fact, other-than-normal operations and the initial impoundage of water behind a dam have been rejected as a basis for licensing jurisdiction. (*United States* v. *Appalachian Electric Power Co.*, 107 F. 2d 769, at 787–88.)

The applicable law thus requires that in order to vest licensing jurisdiction in the Commission, the Taum Sauk Project, located on a non-navigable stream, must in its ordinary, normal operation produce a substantial and inevitable effect on navigable waters. Assuming, *arguendo* (though we do not admit), that the Black River is navigable downstream from the mouth of the East Fork, neither the Presiding Examiner nor the Commission has found that the Taum Sauk Project will meet even one of [178] these criteria, when in fact all three must be fulfilled if the Commission's licensing jurisdiction is to attach thereto.

Actually, the Commission, in its Opinion herein, stated:

> "We concur, however, in the conclusion of the Examiner that the Commission has license jurisdiction because of effect on downstream navigable capacity." (Opinion, p. 9.)

It is particularly significant that, while expressly concurring in the Examiner's conclusion on this issue of downstream effect, the Commission in its two references to the Examiner's findings on this point (Opinion, pp. 2, 6) misstates such findings of the Examiner. In both of these passages the Commission accepts as the test for the effect on navigability, the test which has been established by the courts and by the Commission in this regard and which Union has throughout maintained to be the test. Heretofore, however, neither the Commission Staff in its contentions, nor the Examiner in his Decision accepted the fact that the downstream effect produced by the normal operation of the project must be substantial and inevitable if it is to vest licensing jurisdiction in the Commission. In fact, the Presiding Examiner did *not* find that the Taum Sauk Project will have an inevitable and substantial effect on downstream navigability. More importantly, there is no evidence in the Record which would support a finding that the Taum Sauk Project will have a substantial and inevitable effect on downstream navigable waters. And indeed it will not have such an effect.

In holding that the Commission's licensing jurisdiction should attach to the Taum Sauk Project, the Presiding Examiner's Decision was based on hypothetical situations (e. g., the initial impoundment, high flow periods, malfunctions of facilities, and emergency operations) which are (1) without adequate support in the Record, (2) impractical, unreasonable and inapplicable, and (3) not inevitable and not produced under normal operations. Therefore, such hypothetical situations cannot be used as a basis for the invocation of the licensing jurisdiction of the Commission. With respect to normal operations, however, the Presiding Examiner's full statement and conclusion is:

> [179] "During stream flows of 2800 feet per second or less into the lower pool and for the normal cycles of gen-

> eration and pumping for the project works there would be no increase or decrease in the natural stage and flow below the project works, assuming no emergency operations, and no malfunctions of facilities." (Decision, p. 11.)

(It is pointed out that recorded flows indicate that more than 99½% of the time the stream flows are 2,000 feet per second or less at the Project site.)

It is most significant that the Commission states:

> "It is contemplated that, after the initial impounding of water, all of the natural flow into the lower pool will be released through the sluice gates. Because of the varying inflow and constantly changing head of impounded water above the gates, the sluices would require continual adjustment to permit the natural flow and only the natural flow to pass. But absent mechanical or human failure or a change in the operation, it would be possible to so control the flow except in periods of high water." (Opinion, pp. 1–2.)

Under the law, as we have seen, only normal operation can be a basis for the Commission's licensing jurisdiction. If, as recognized by the above-quoted statement in the Commission's Opinion, the inevitable result of such normal operation will be no variation in stage and flow in the waters below the dam, be they navigable or non-navigable, then there can be no finding of downstream effect, substantial or otherwise.

## SUMMARY

For the foregoing reasons and for the reasons expressed by Union in its Brief in this proceeding and in its Exceptions to the Decision of the Presiding Examiner herein (both of which are incorporated herein by reference), there is no basis in law or in fact which would justify, compel or countenance the assertion of licensing jurisdiction of the Taum Sauk Project by the Commission.

## PRAYER

[180] Accordingly, Union respectfully requests the Commission to vacate its Opinion and Order issued in this proceeding on

**April 19, 1962, to grant a rehearing in this proceeding, and to take such other steps as may be necessary to enter herein, in accordance with the applicable law and facts, an appropriate Order finding that the Commission does not have licensing jurisdiction of Union's Taum Sauk Project, thereby permitting the said Project to be constructed, operated and maintained upon compliance with the state laws.**

**Respectfully submitted.**

**Charles J. Dougherty and**
**Duane A. Patterson,**
*315 North Twelfth Blvd., St. Louis 66, Missouri,*
*Attorneys for Union Electric Company.*

St. Louis, Missouri, *May 18, 1962.*

Duly sworn to by John A. Woodbridge, jurat omitted in printing (all in italics).

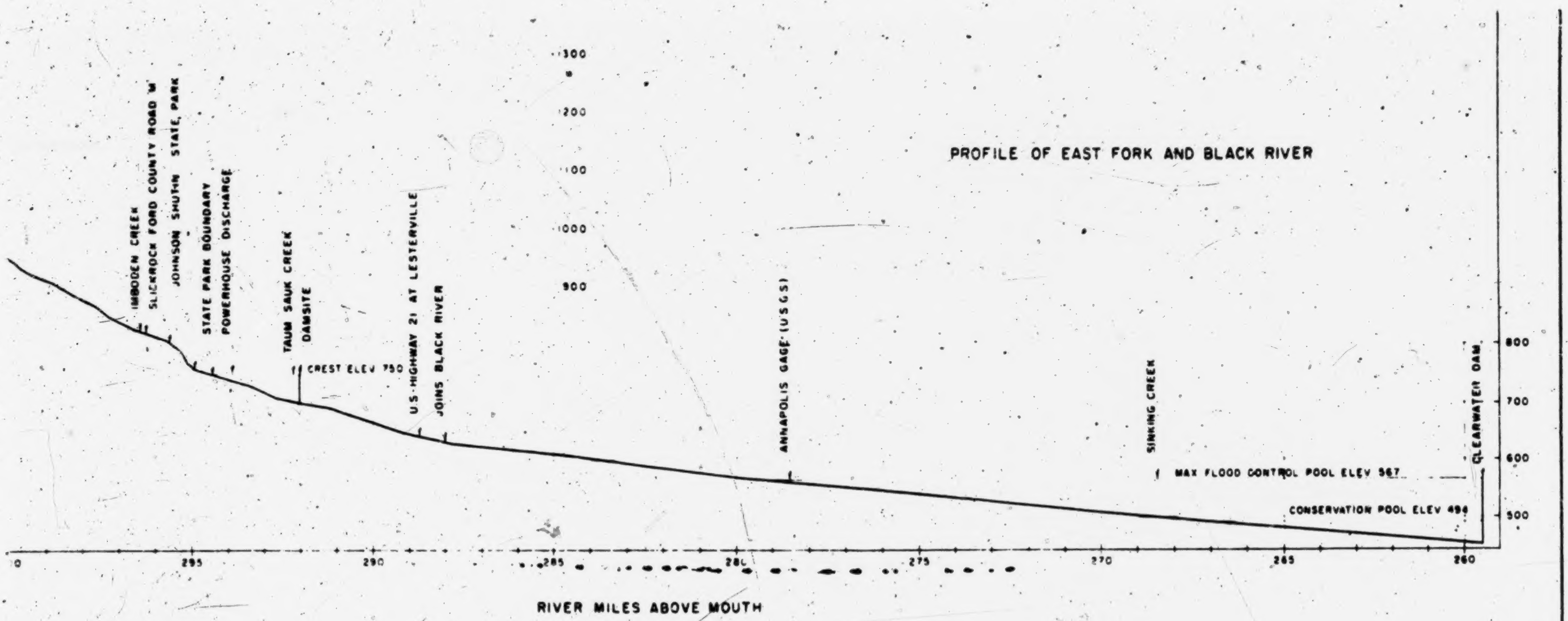
[181] *Order Denying Application for Rehearing—issued June 20, 1962*

Before the Federal Power Commission

Before Commissioners: Joseph C. Swidler, Chairman; Howard Morgan, L. J. O'Connor, Jr., Charles R. Ross and Harold C. Woodward

*Union Electric Company Docket No. E-6927*

On May 21, 1962, Union Electric Company filed application for rehearing of the Commission's Opinion No. 356 and Order Upon a Declaration of Intention, issued April 19, 1962 in the above-entitled proceeding. The Presiding Examiner at the original hearing had found that the proposed Taum Sauk project in the State of Missouri would be capable of affecting, and would, at times, affect the navigable capacity of the Black River which is a navigable waterway of the United States, and therefore, was required to be licensed under the Federal Power Act. The Commission adopted his findings and conclusions in this regard. In addition, the Examiner found that the proposed project will be constructed, operated and maintained for the development of power to supply markets outside the State of Missouri, thereby affecting the interests of interstate com-



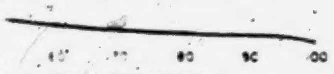
NOTE A
All flow information shown is based on a drainage area of 88 square miles at the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U.S.G.S. gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U.S.G.S. from October 1, 1939 to September 30, 1957. Drainage area, 484 square miles. Flow assumed directly proportional to drainage area.

This exhibit is a part of the declaration of intention made by the undersigned this 29TH day of JANUARY 1960

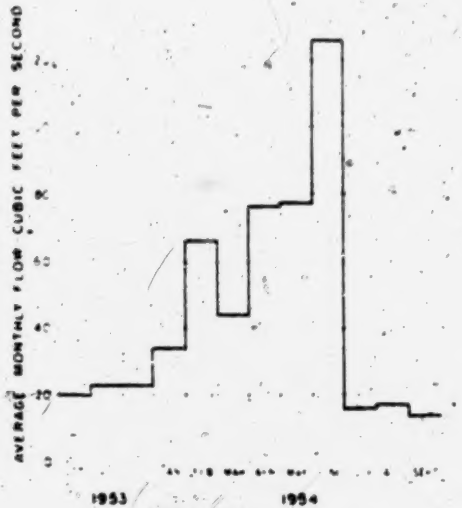
UNION ELECTRIC COMPANY

By

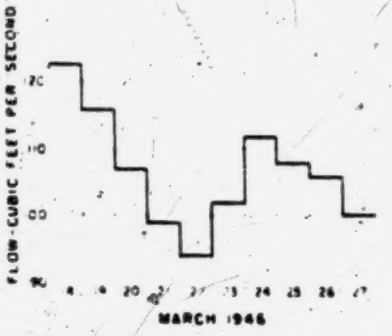
President



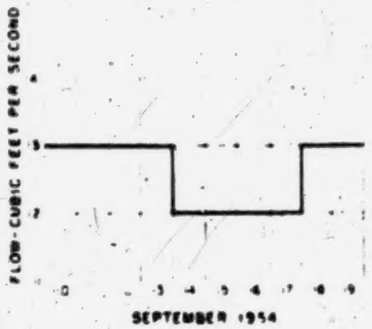
S REACHED OR EXCEEDED
ON CURVE
D FLOWS AT DAM SITE



AVERAGE MONTHLY FLOW
LOWEST WATER YEAR OF RECORD
NATURAL AND REGULATED FLOWS AT DAM SITE
(SEE NOTE A)



10 DAY PERIOD APPROXIMATING AVERAGE
RECORDED YEARLY FLOW
NATURAL AND REGULATED FLOW AT DAM SITE
(SEE NOTE A)



10 DAY PERIOD OF LOWEST RECORDED
FLOW OF RECORD
NATURAL AND REGULATED FLOWS AT DAM SITE
(SEE NOTE A)

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT B

merce. The Commission adopted this finding also and held that the development, transmission and utilization of this power in interstate commerce will have such an effect upon the interests of interstate commerce that a hydroelectric project proposing to use the Nation's water resources for this purpose is required to be licensed under the Federal Power Act.

In Opinion No. 356, the Commission held that it had the duty under the Federal Power Act, when the use of the Nation's water resources is proposed for hydroelectric power development, to assure that the most beneficial and comprehensive use of those resources is achieved and protected in the interests of the Nation as a whole. When [182] the interests of interstate commerce will be affected by such a project, even if navigation were not affected, the Commission held that the same duty applied.

## THE COMMISSION FINDS

The grounds for rehearing contained in the application for rehearing set forth no new facts or principles of law which were not fully considered by the Commission when it issued its opinion and order on April 19, 1962, or which, having now been considered, warrant any modification of the said opinion and order.

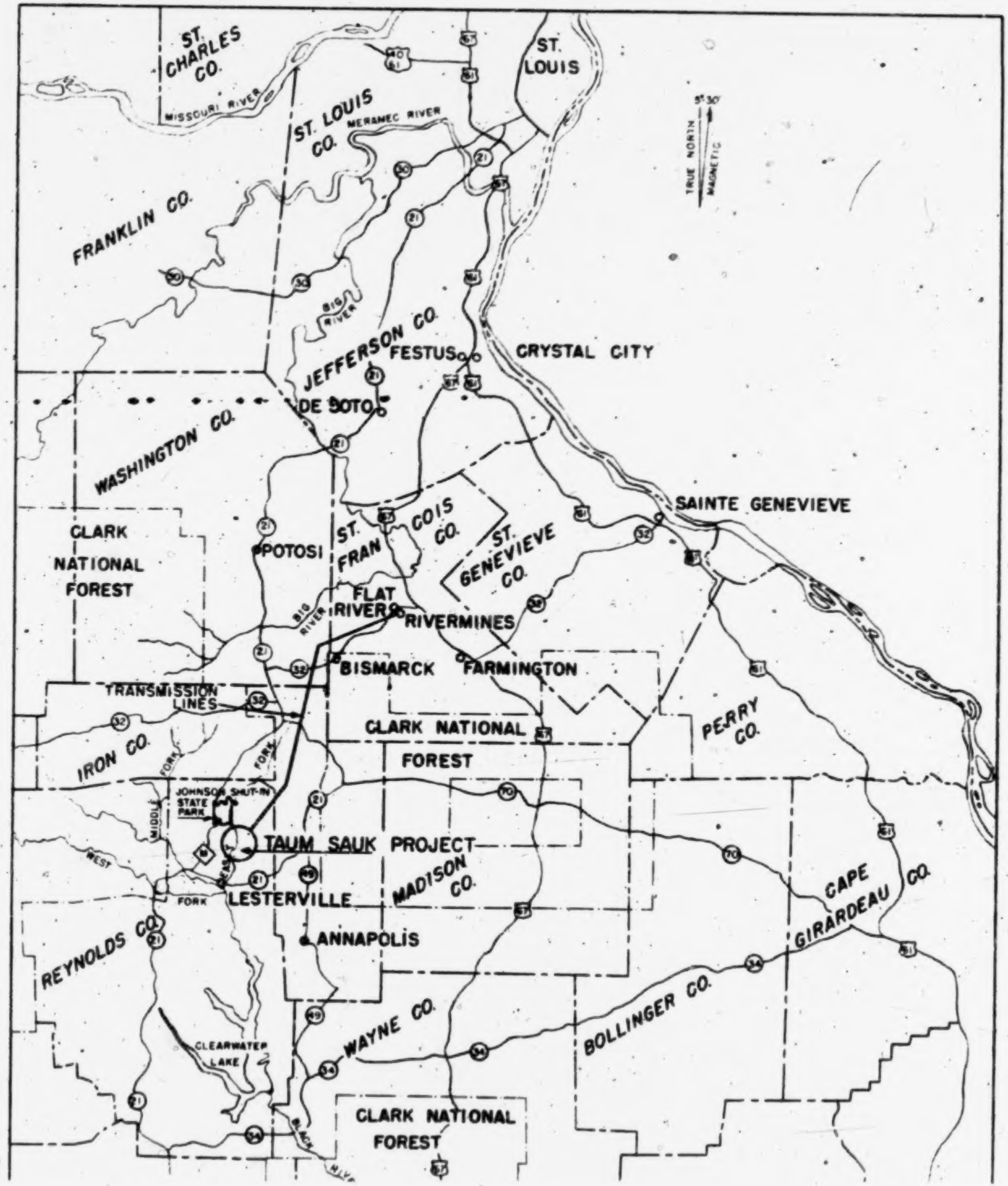
## THE COMMISSION ORDERS

The above-mentioned application for rehearing of the Commission's Opinion No. 356 and Order issued April 19, 1962 in this proceeding is hereby denied.

By the Commission.

JOSEPH H. GUTRIDE,
*Secretary.*

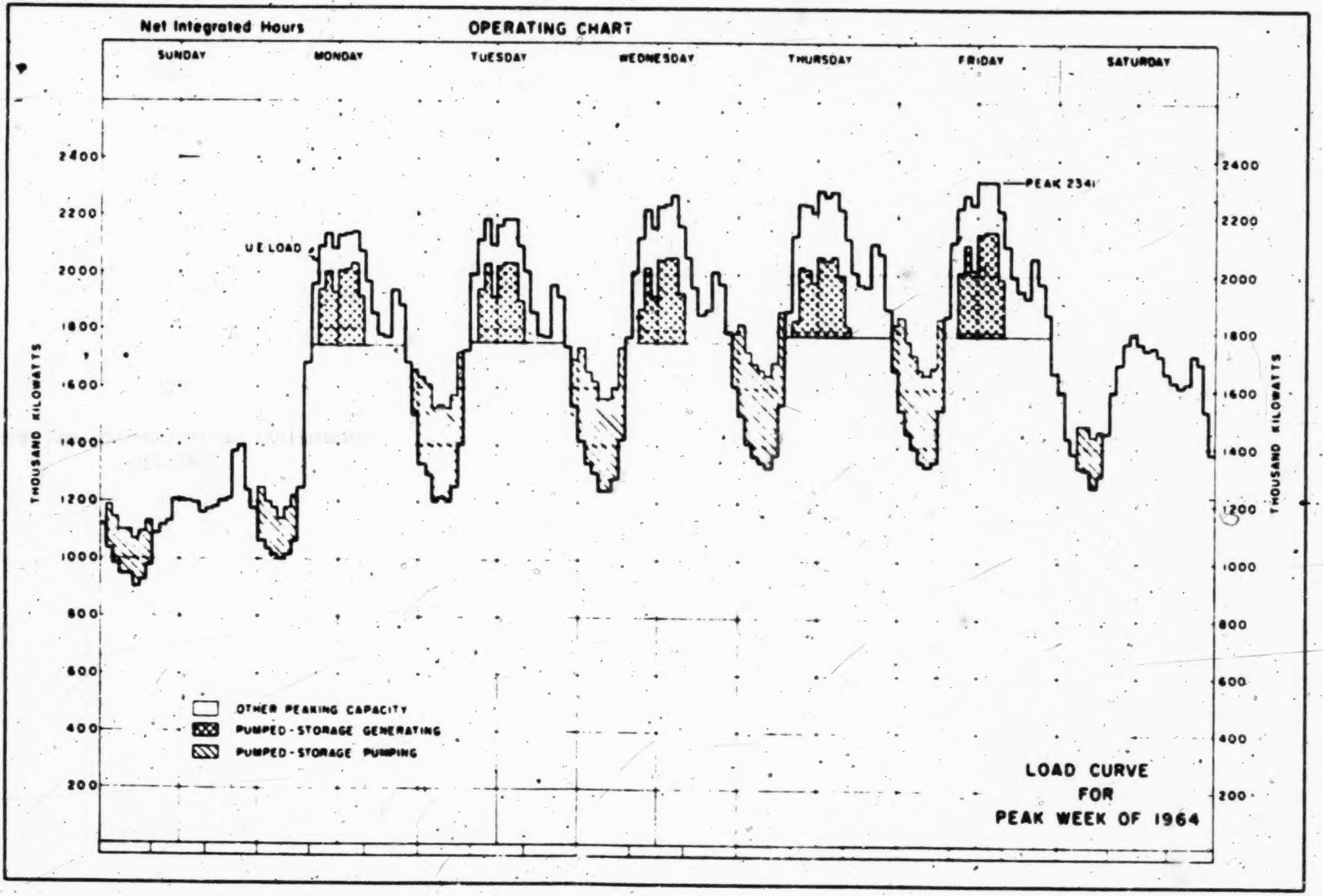
EXHIBIT 2 A

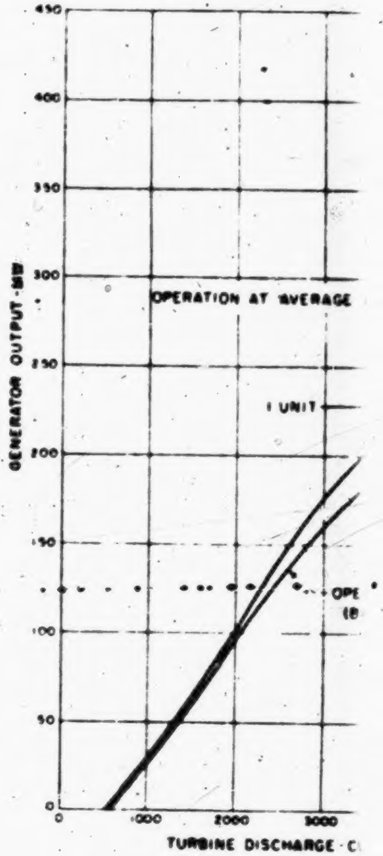

ST. CHARLES CO.
MISSOURI RIVER
ST. LOUIS CO.
MERAMEC RIVER
ST. LOUIS
40
61
67
61
TRUE NORTH
MAGNETIC
5°30'
FRANKLIN CO.
30
21
67
50
30
BIG RIVER
61
JEFFERSON CO.
FESTUS
CRYSTAL CITY
21
67
61
DE SOTO
WASHINGTON CO.
21
CLARK NATIONAL FOREST
21
POTOSI
ST. FRANCOIS CO.
67
ST. GENEVIEVE CO.
61
32
SAINTE GENEVIEVE
61
BIG RIVER
FLAT RIVER
RIVERMINES
32
21
32
BISMARCK
FARMINGTON
61
TRANSMISSION LINES
32
32
CLARK NATIONAL FOREST
67
PERRY CO.
IRON CO.
MIDDLE FORK
FORK
JOHNSON SHUT-IN STATE PARK
21
70
TAUM SAUK PROJECT
WEST FORK
21
49
LESTERVILLE
MADISON CO.
70
CAPE GIRARDEAU CO.
61
REYNOLDS CO.
21
67
ANNAPOLIS
61
34
BOLLINGER CO.
49
WAYNE CO.
34
34
CLEARWATER LAKE
21
34
BLACK RIVER
CLARK NATIONAL FOREST
67

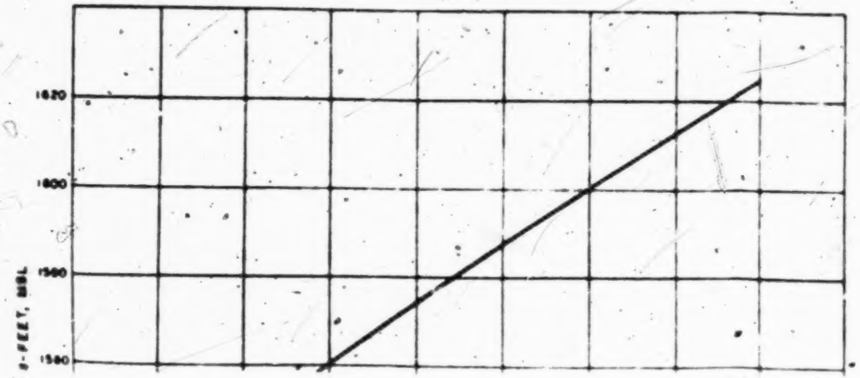
This exhibit is a part of the declaration of intention made by the undersigned this 29TH day of JANUARY 1960

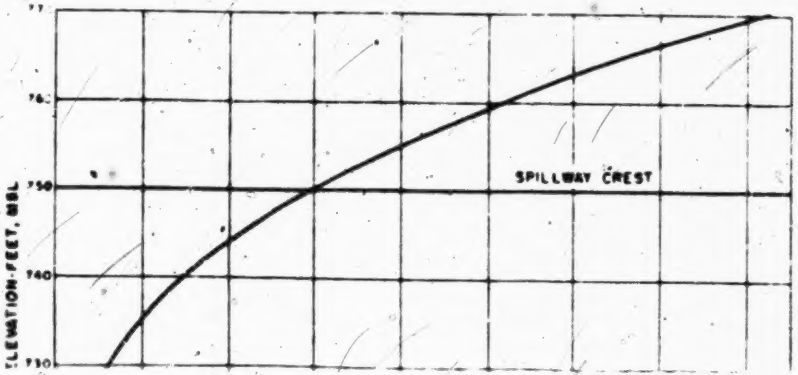
UNION ELECTRIC COMPANY

By J. W. McAfee
President

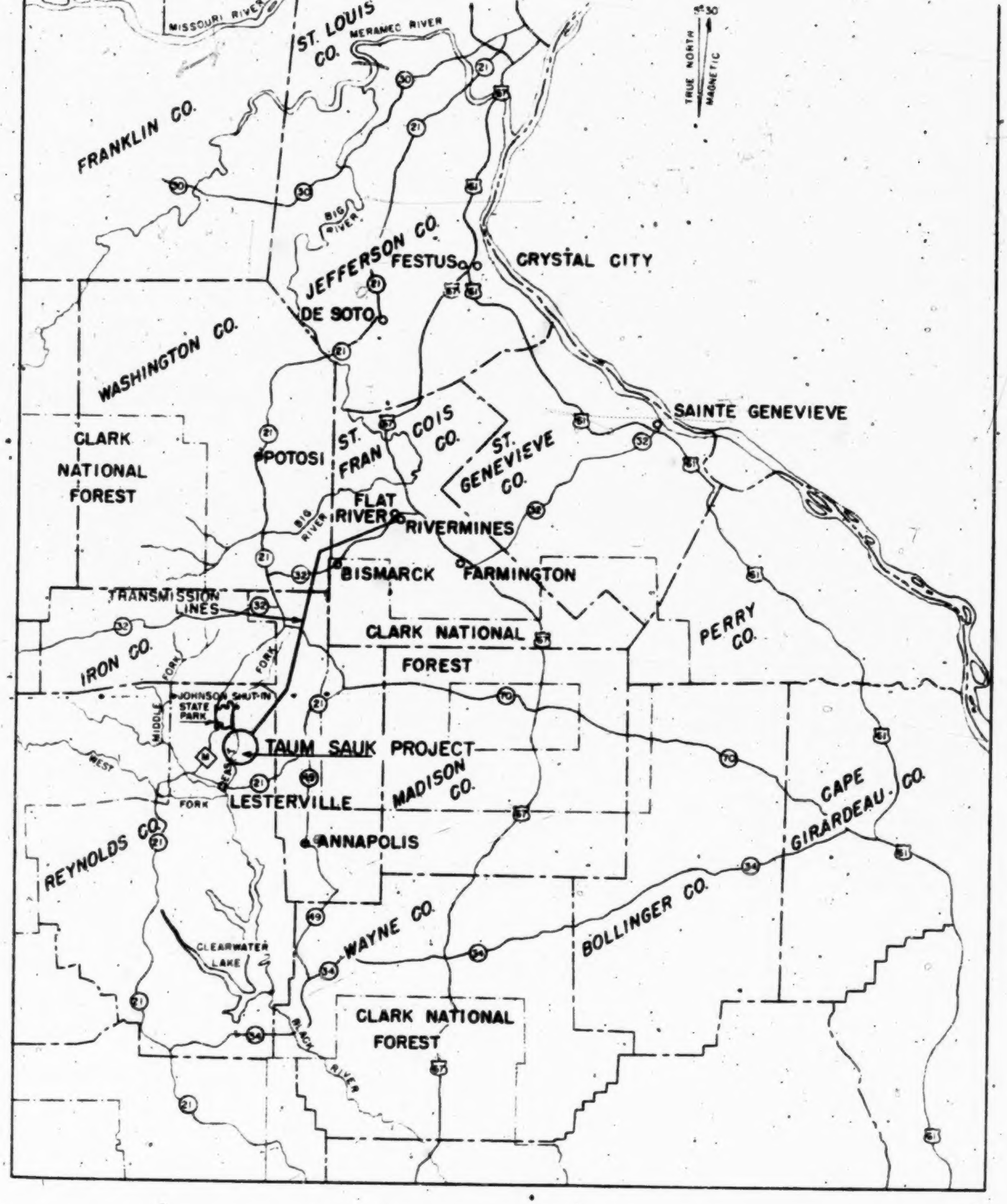

Net Integrated Hours
OPERATING CHART
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
THOUSAND KILOWATTS
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
U E LOAD
PEAK 2341
OTHER PEAKING CAPACITY
PUMPED-STORAGE GENERATING
PUMPED-STORAGE PUMPING
LOAD CURVE
FOR
PEAK WEEK OF 1964


GENERATOR OUTPUT-MW
450
400
350
300
250
200
150
100
50
0
OPERATION AT AVERAGE
1 UNIT
OPE
(B
0
1000
2000
3000
TURBINE DISCHARGE-C


1620
1600
1580
1560
-FEET, MSL


77
760
750
740
730
ELEVATION-FEET, MSL
SPILLWAY CREST

Thi
the


MISSOURI RIVER
ST. LOUIS CO.
MERAMEC RIVER
TRUE NORTH
MAGNETIC
5°30'
FRANKLIN CO.
BIG RIVER
JEFFERSON CO.
FESTUS
CRYSTAL CITY
DE SOTO
WASHINGTON CO.
SAINTE GENEVIEVE
CLARK NATIONAL FOREST
POTOSI
ST. FRANCOIS CO.
ST. GENEVIEVE CO.
BIG RIVER
FLAT RIVER
RIVERMINES
BISMARCK
FARMINGTON
TRANSMISSION LINES
CLARK NATIONAL FOREST
PERRY CO.
IRON CO.
MIDDLE FORK
JOHNSON SHUT-IN STATE PARK
TAUM SAUK PROJECT
WEST FORK
LESTERVILLE
MADISON CO.
CAPE GIRARDEAU CO.
ANNAPOLIS
REYNOLDS CO.
BOLLINGER CO.
WAYNE CO.
CLEARWATER LAKE
BLACK RIVER
CLARK NATIONAL FOREST
21
30
61
67
32
70
49
34

LOCATION MAP

3 0 5 10 15 20 25 30 35 40

SCALE IN MILES
1 INCH = 7 MILES

This exhibit is a part of the declaration of intention made by the undersigned this 29TH day of JANUARY 1960

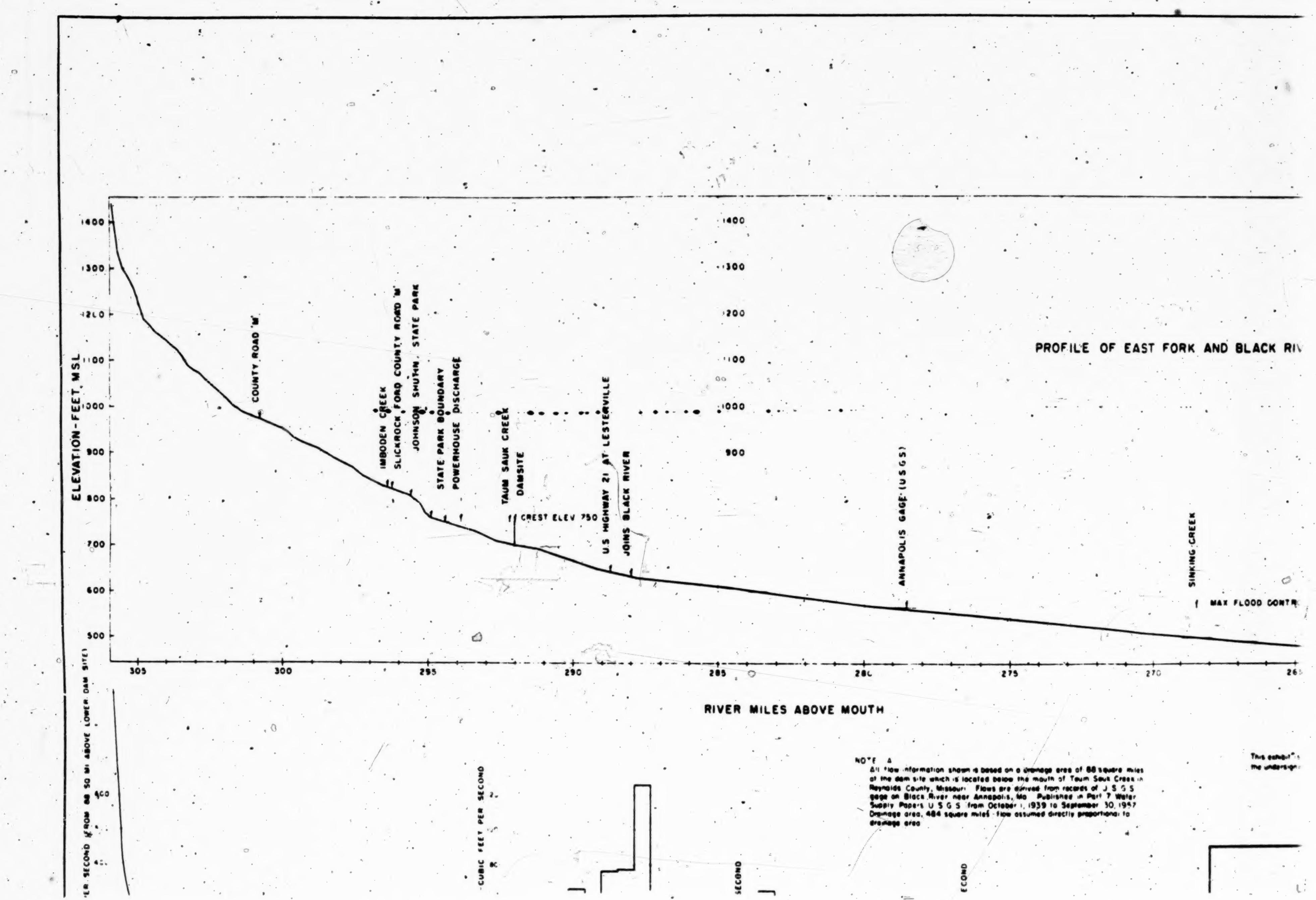
UNION ELECTRIC COMPANY

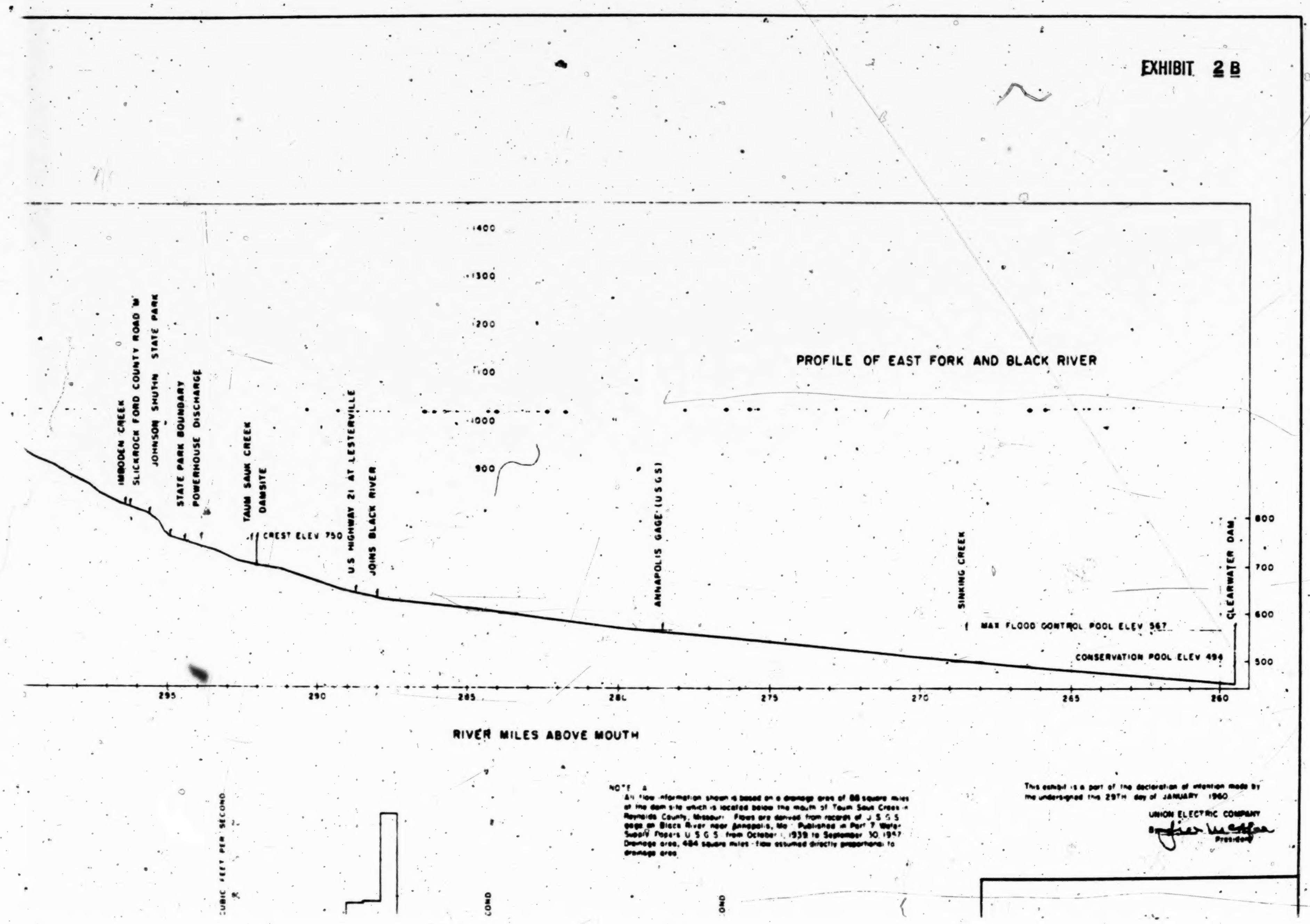
By J. W. McAfee
President

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT A

# BEFORE THE FEDERAL POWER COMMISSION

[183–184]





NOTE A

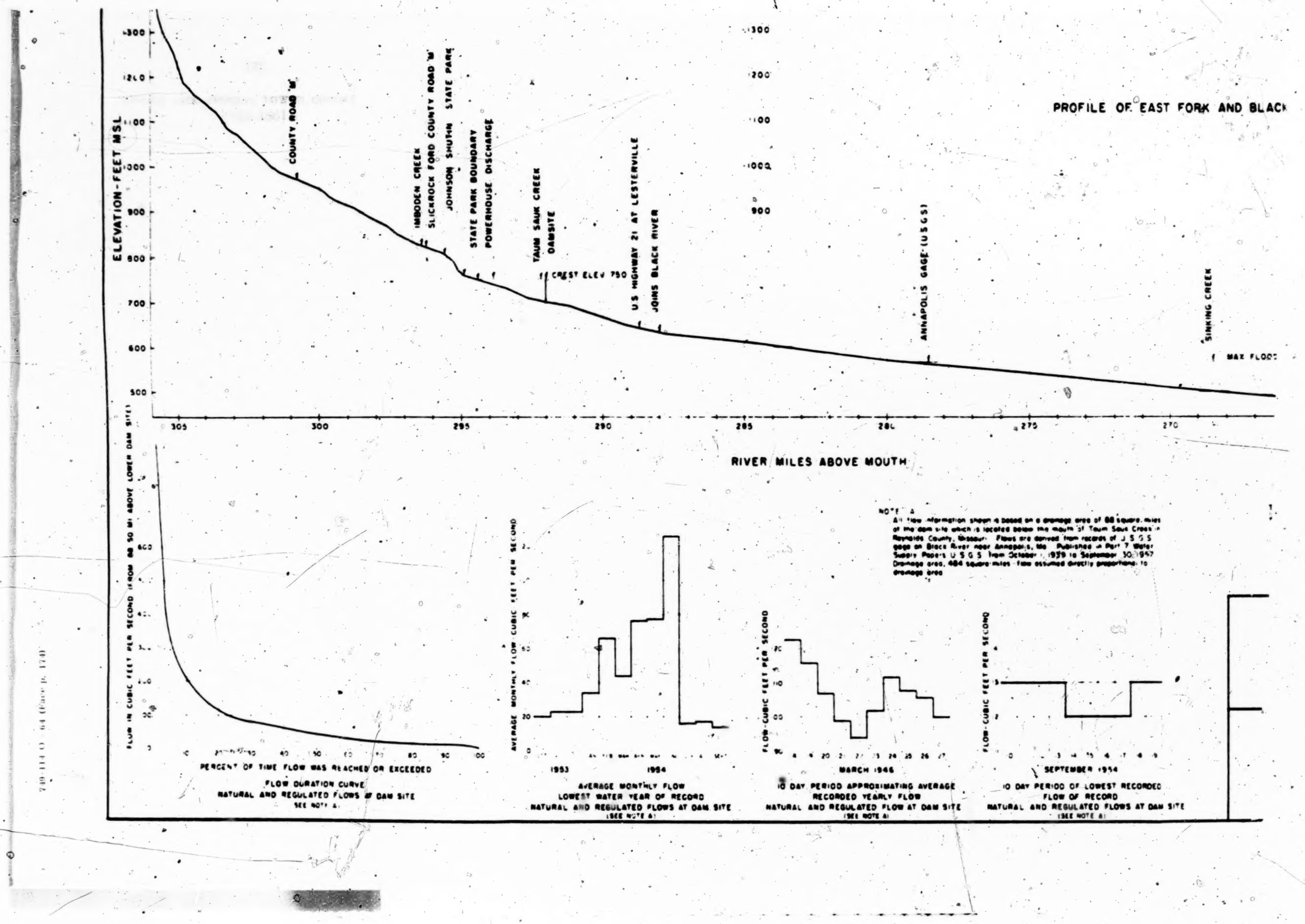
All flow information shown is based on a drainage area of 88 square miles at the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U.S.G.S. gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U.S.G.S. from October 1, 1939 to September 30, 1957. Drainage area, 484 square miles. Flow assumed directly proportional to drainage area.

This exhibit is a part of the declaration of intention made by the undersigned this 29th day of JANUARY 1960

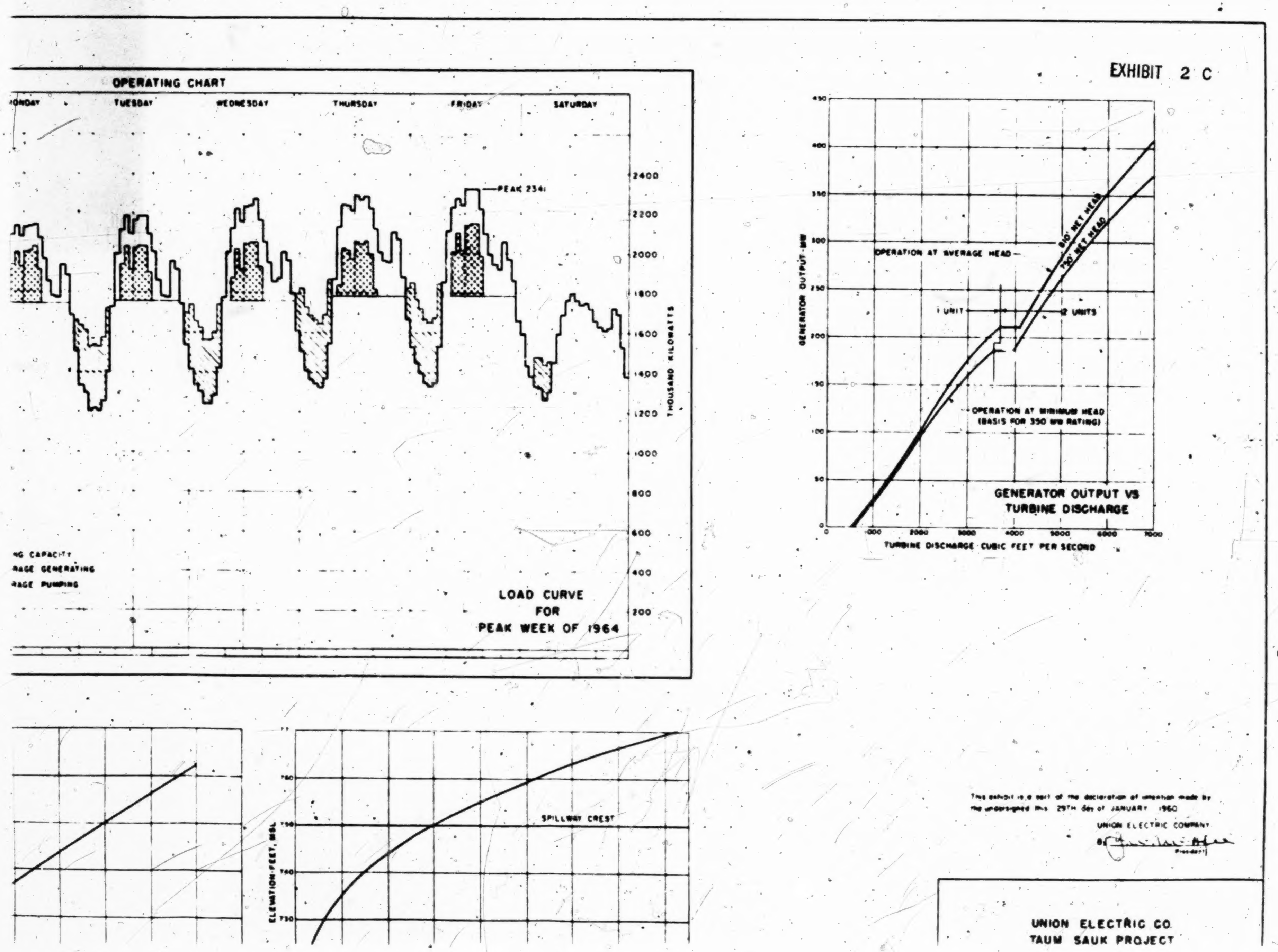
UNION ELECTRIC COMPANY

By

President



749-114 O - 64 (Face p. 174)



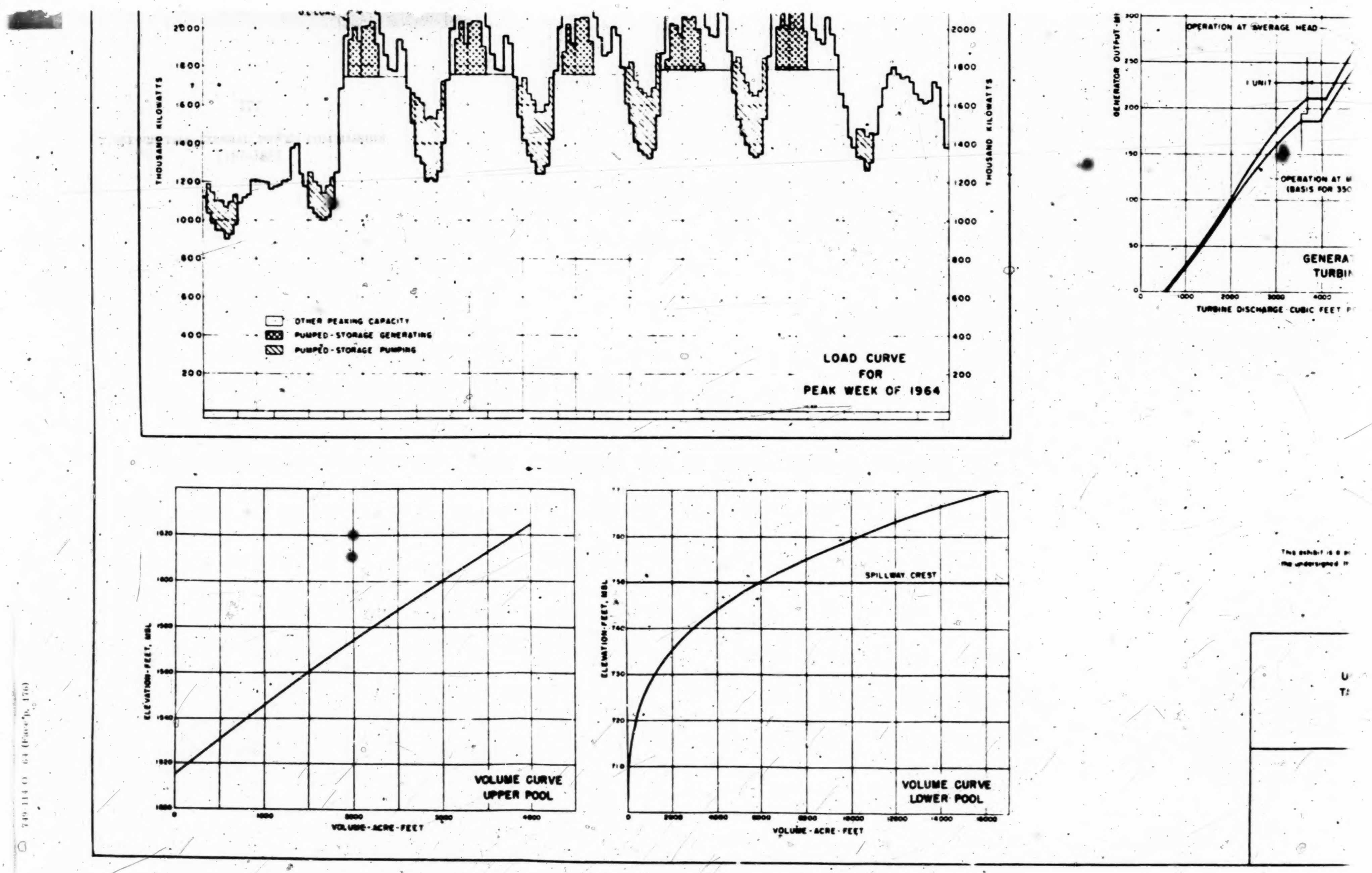
This exhibit is a part of the declaration of intention made by the undersigned this 29th day of JANUARY 1960

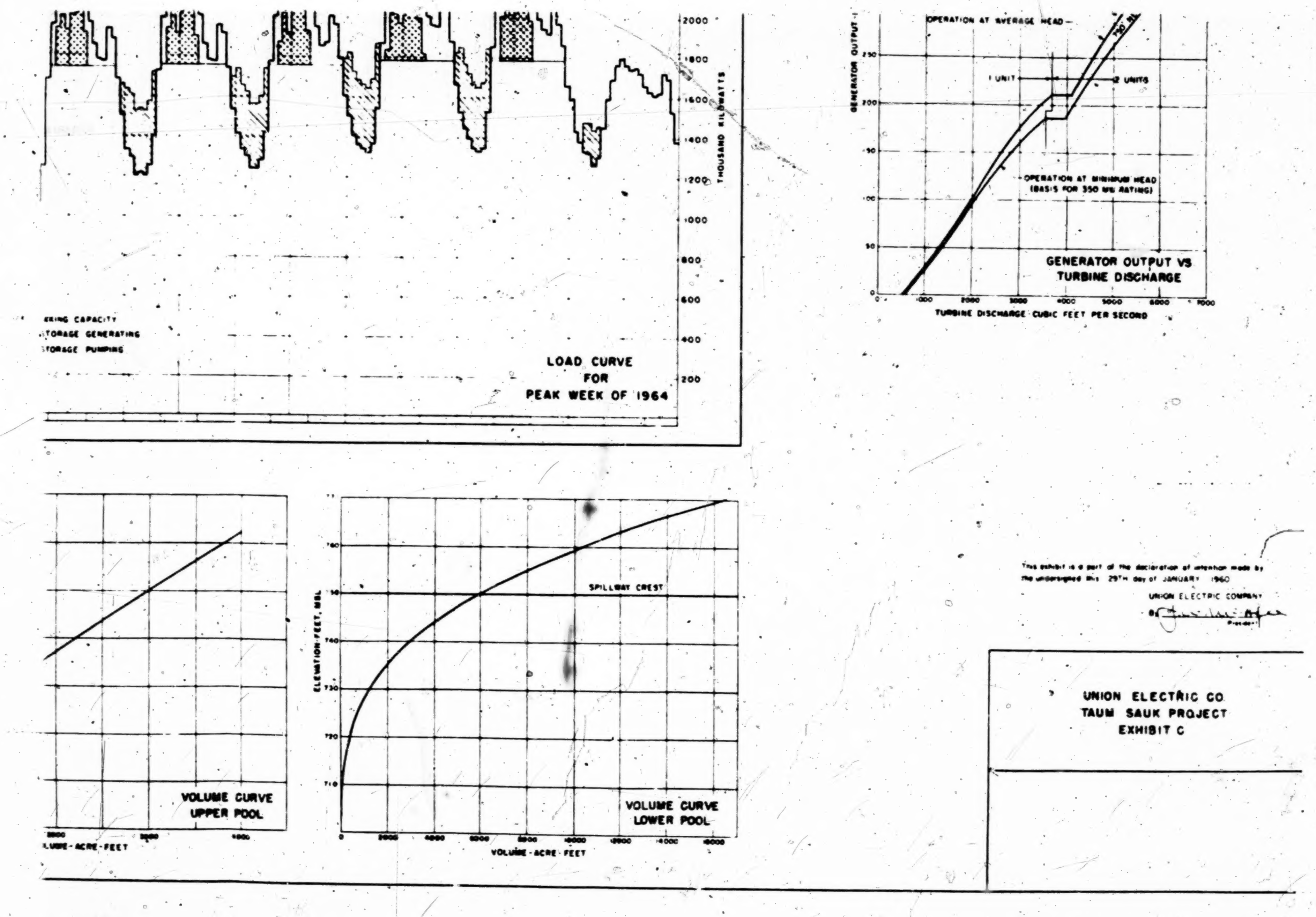
UNION ELECTRIC COMPANY

By

President

UNION ELECTRIC CO
TAUM SAUK PROJECT





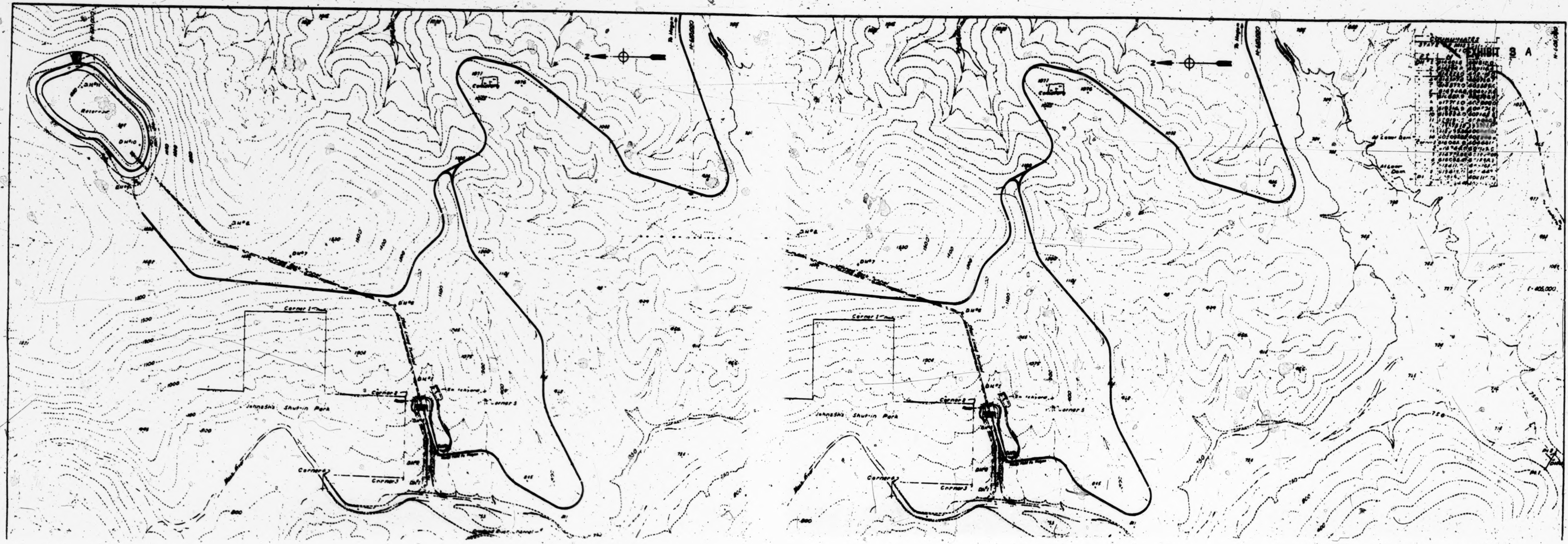
This exhibit is a part of the declaration of intention made by the undersigned this 29th day of JANUARY 1960

UNION ELECTRIC COMPANY

By

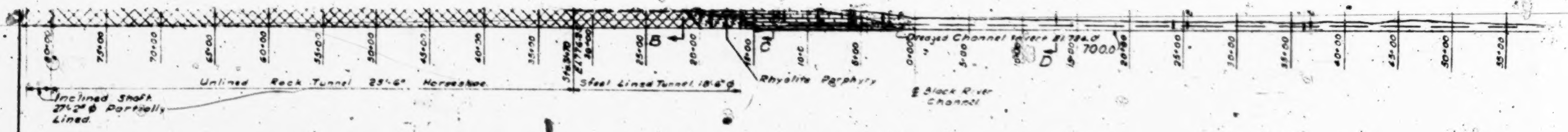
President

UNION ELECTRIC CO
TAUM SAUK PROJECT
EXHIBIT C



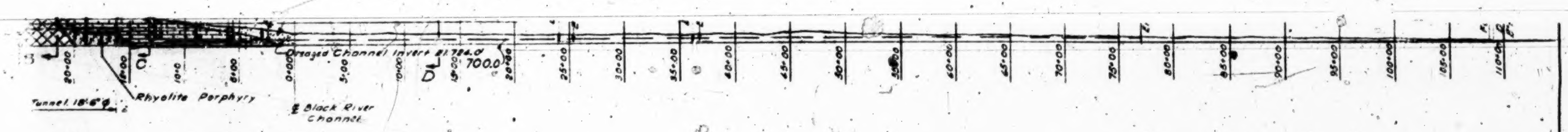
Reservoir
DH No 11
DH No 10
DH No 9
DH No 8
DH No 7
DH No 6
DH No 1
Corner 1
Corner 2
Corner 3
Corner 4
Corner 5
Johnson's Shut-in Park
Black River
At Lower Dam
COORDINATES
N-405,000
E-405,000

EXHIBIT 3 A

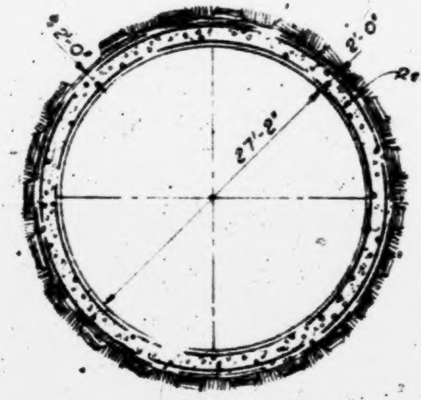

B
℄
D
700.0
Inclined Shaft 27'-2" ø Partially Lined
Unlined Rock Tunnel 25'-6" Horseshoe
Steel Lined Tunnel 18'-6" ø
Rhyolite Porphyry
Dredged Channel Invert
℄ Black River Channel

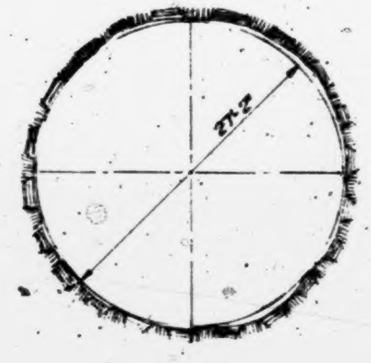
## PROFILE OF WATER CONDUIT & CHANNEL

Scale: Hor. 1" = 600'
Vert. 1" = 300'


℄
D
700.0
Tunnel 18'-6" ø
Rhyolite Porphyry
Dredged Channel Invert
℄ Black River Channel

PROFILE OF WATER CONDUIT & CHANNEL
Scale: Hor. 1" = 600'
Vert. 1" = 300'

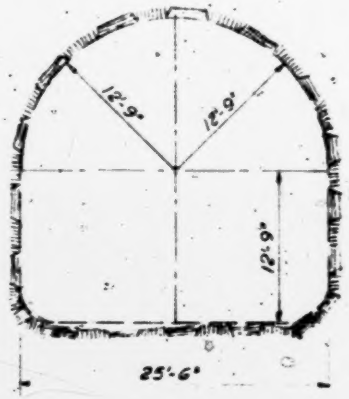

2'-0"
2'-0"
Reinforcing
27'-2"



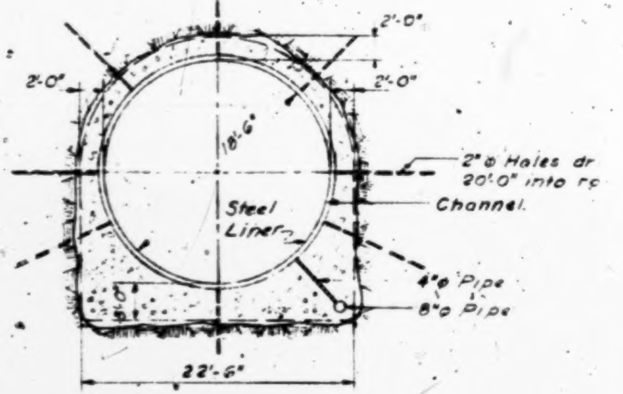
SHAFT

Section Through Lined Portion
Length = 176'-0" from Top

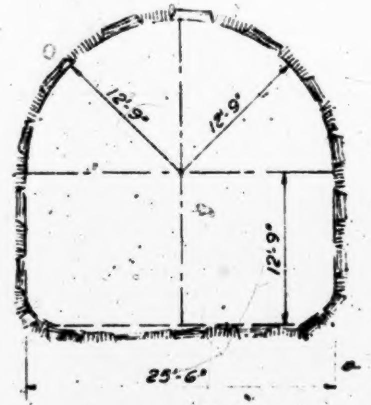
Section Through Unlined Portion.


12'-9"
12'-9"
12'-9"
25'-6"

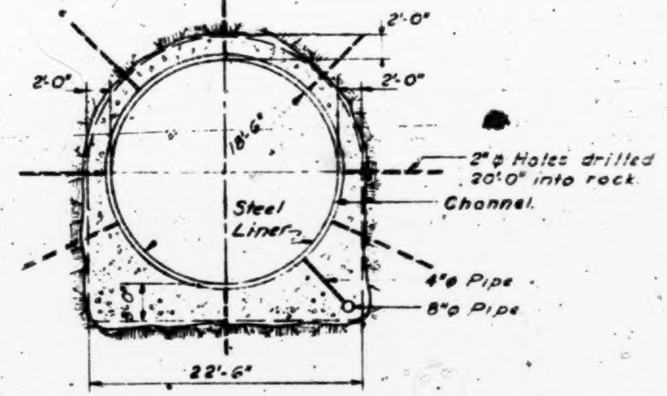
SECTION A-A
Scale ⅛" = 1'-0"


2'-0"
2'-0"
2'-0"
18'-6"
2" ø Holes dr
20'-0" into ro
Channel.
Steel Liner
4" ø Pipe
8" ø Pipe
22'-6"

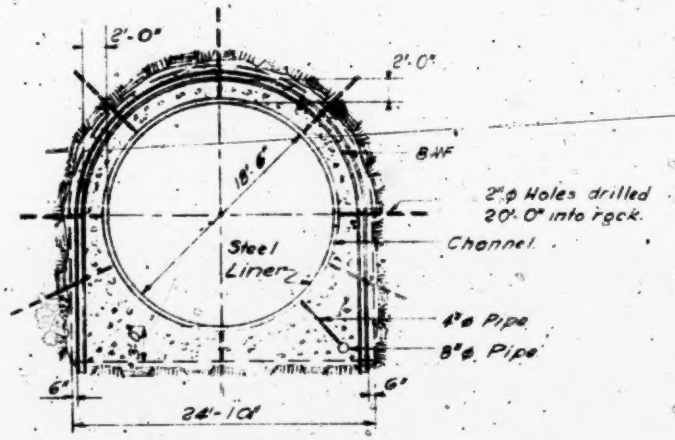
SECTION B-B
Unsupported
Scale ⅛" = 1'-0"


12'-9"
12'-9"
12'-9"
25'-6"

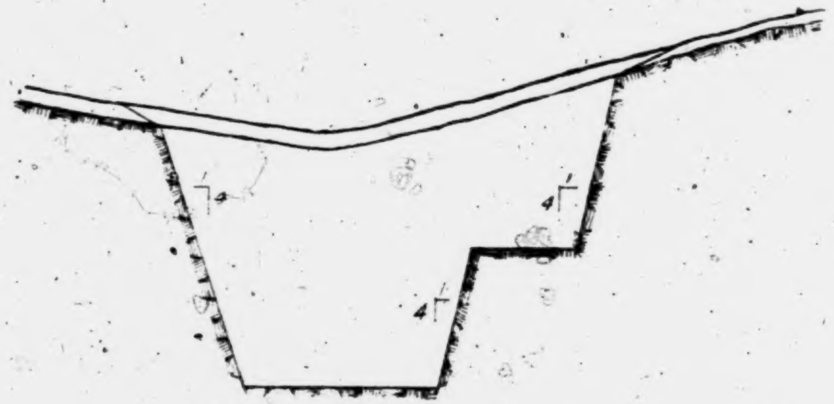
SECTION A-A
Scale ⅛" = 1'-0"


2'-0"
2'-0"
2'-0"
18'-6"
2" ø Holes drilled
20'-0" into rock.
Channel.
Steel Liner
4" ø Pipe
8" ø Pipe
22'-6"

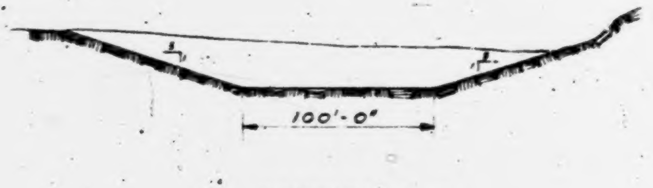
SECTION B-B
Unsupported
Scale ⅛" = 1'-0"


2'-0"
2'-0"
8 WF
18'-6"
2" ø Holes drilled
20'-0" into rock.
Channel.
Steel Liner
4" ø Pipe
8" ø Pipe
6"
6"
24'-10"

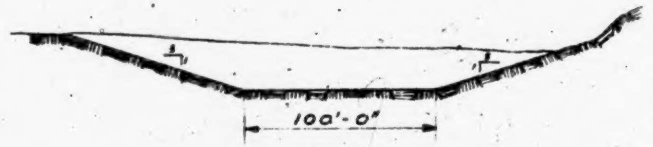
SECTION B-B
Supported
Scale ⅛" = 1'-0"



SECTION C-C



SECTION D-D
Typical Channel Section
in River Bed
Scale 1" = 50'



SECTION D-D
Typical Channel Section
in River Bed
Scale 1" = 50'

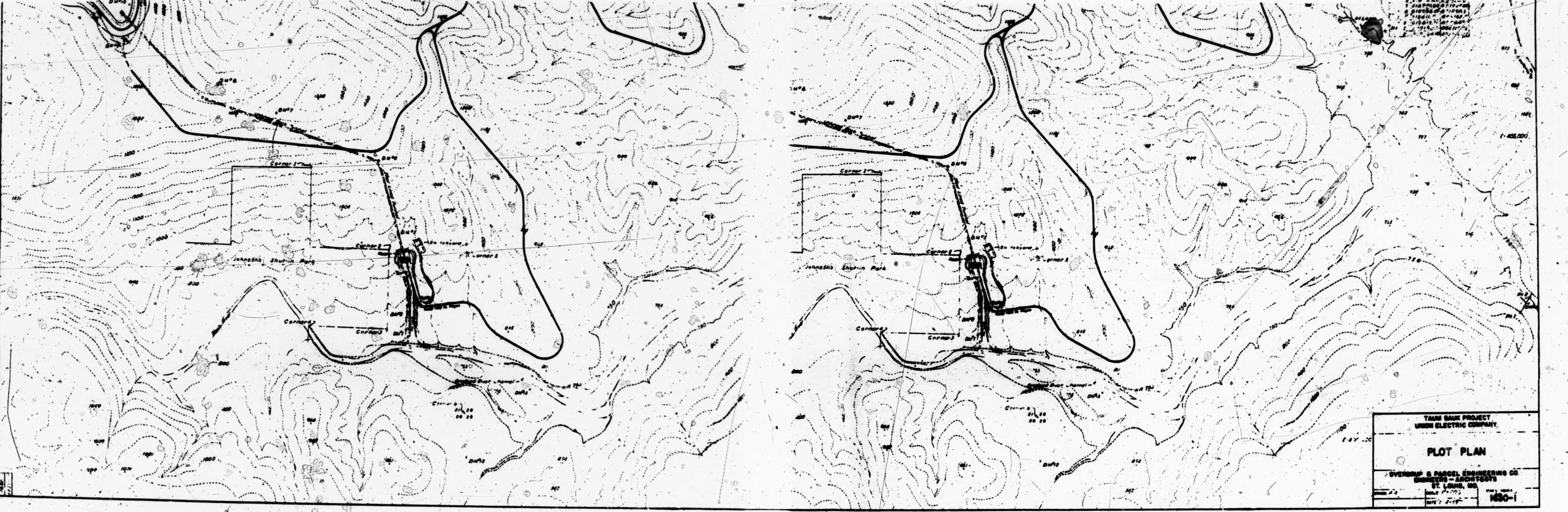
1620
5952118

TAUM SAUK PROJECT
UNION ELECTRIC COMPANY

## WATER CONDUIT & CHANNEL PROFILE & CROSS SECTIONS

SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS — ARCHITECTS
ST. LOUIS, MO.

| | | |
|---|---|---|
| DRAWN A.H. | SCALE As Noted. | DRAWING NUMBER<br>1630-3 |
| | DATE 3-4-59. | |


Corner 1
Corner 2
Corner 3
Johnson's Shut-in Park
1000
800

TAUM SAUK PROJECT
UNION ELECTRIC COMPANY

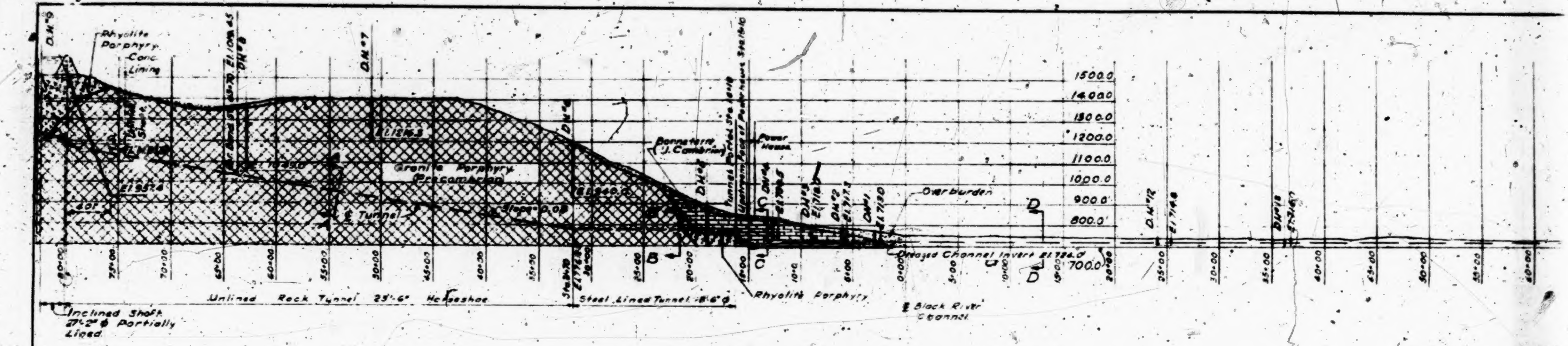
## PLOT PLAN

SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS - ARCHITECTS
ST. LOUIS, MO.

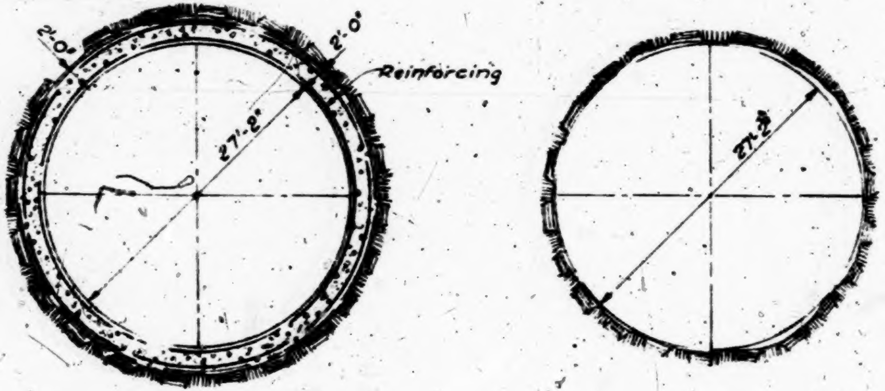
1630-1

[191–192]

• • • • •


D.H.9
Rhyolite Porphyry
Conc. Lining
El.1098.45
D.H.8
D.H.7
El.1216.5
El.957.4
40'
Granite Porphyry (Precambrian)
℄ Tunnel
Slope=0.08
D.H.6
El.840.0
Bonneterre (U. Cambrian)
D.H.5
Tunnel Portal Sta.16+18
Upstream Face of Powerhouse Sta.15+10
Power House
D.H.4
D.H.3
D.H.2
D.H.1
El.717.3
El.713.0
Overburden
D.H.12
El.714.8
D.H.13
1500.0
1400.0
1300.0
1200.0
1100.0
1000.0
900.0'
800.0'
700.0'
80+00
75+00
70+00
65+00
60+00
55+00
50+00
45+00
40+00
35+00
30+00
25+00
20+00
15+00
10+0
5+00
0+00
B
C
D
Dredged Channel Invert El.724.0
Unlined Rock Tunnel 25'-6" Horseshoe
Sta.34+10 El.776.8
Steel Lined Tunnel 18'-6" ⌀
Rhyolite Porphyry
℄ Black River Channel
Inclined Shaft 27'-2" ⌀ Partially Lined

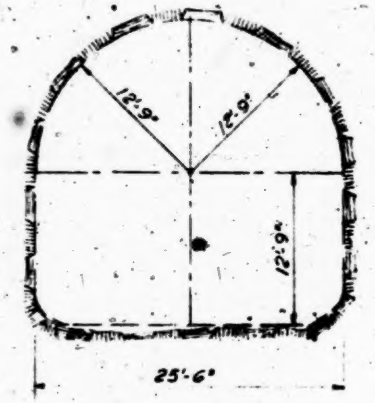
PROFILE OF WATER CONDUIT & CHANNEL.
Scale: Hor. 1" = 600'
Vert. 1" = 300'


2'-0"
2'-0"
Reinforcing
27'-2"
27'-2"

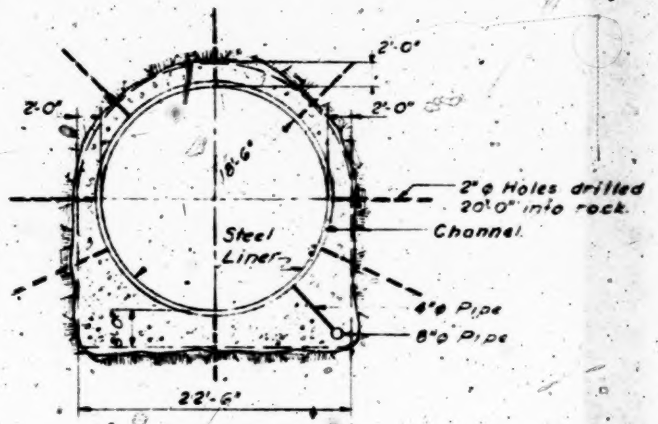
SHAFT

Section Through Lined Portion
Length = 176'-0" from Top.

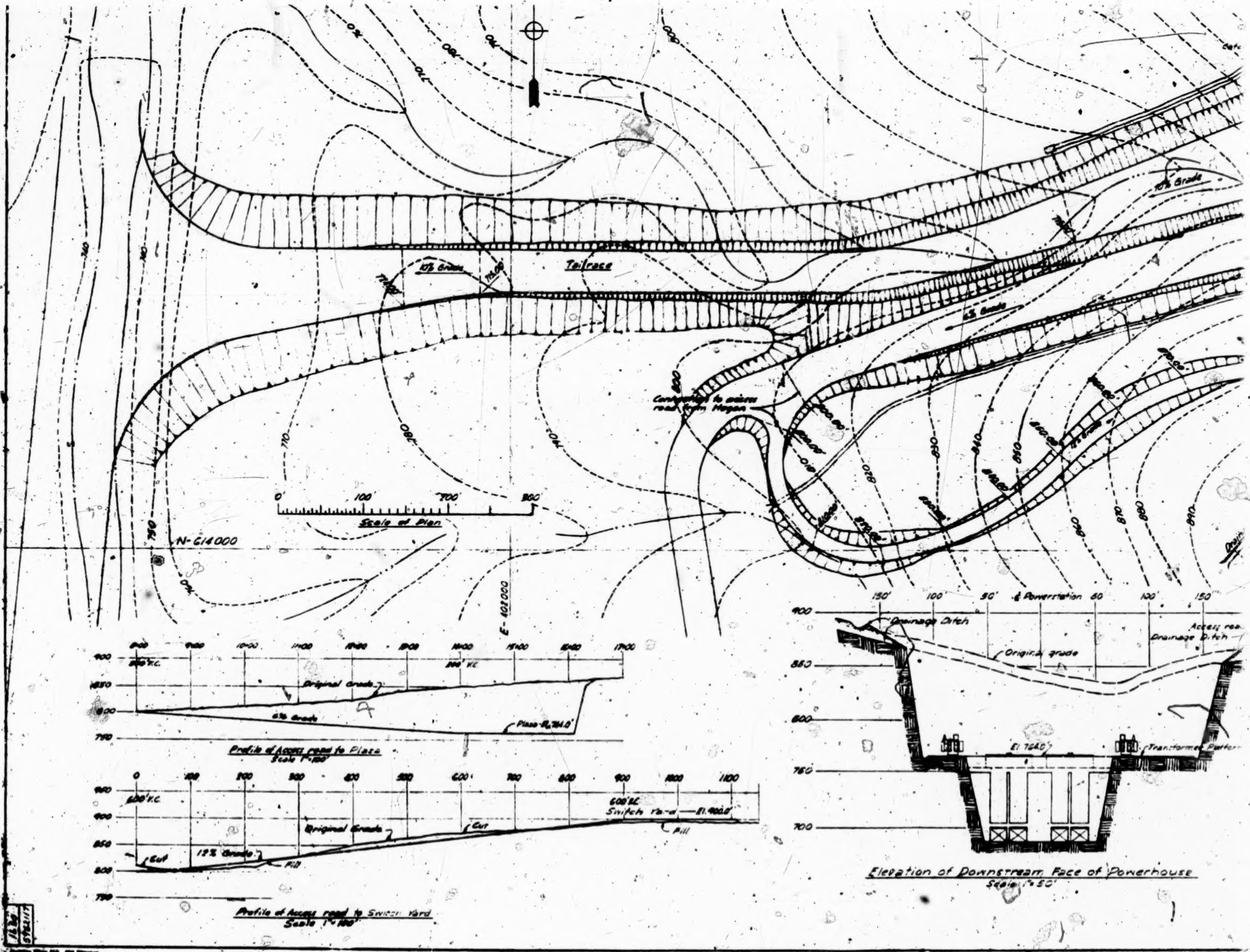
Section Through Unlined Portion.


12'-9"
12'-9"
12'-9"
25'-6"

SECTION A-A
Scale 1/8" = 1'-0"


2'-0"
2'-0"
2'-0"
18'-6"
2" ⌀ Holes drilled 20'-0" into rock.
Channel.
Steel Liner
4" ⌀ Pipe
8" ⌀ Pipe
22'-6"

SECTION B-B
Unsupported
Scale 1/8" = 1'-0"


Tailrace
10% Grade
6% Grade
Connection to access road from Hagan
N-614000
E-102000
0
100'
200'
300'
Scale of Plan
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
900
850
800
750
200' V.C.
Original Grade
6% Grade
Plaza-El. 784.0'
0
100
200
300
400
500
600
700
800
900
1000
1100
950
900
850
800
750
600' V.C.
600' V.C.
Switch Yard — El. 900.0'
Original Grade
Cut
12% Grade
Cut
Fill
Fill
150'
100'
50'
℄ Powerstation
50
100'
150
900
850
800
750
700
Drainage Ditch
Access roa
Drainage Ditch
Original grade
El 764.0'
Transformer Platform

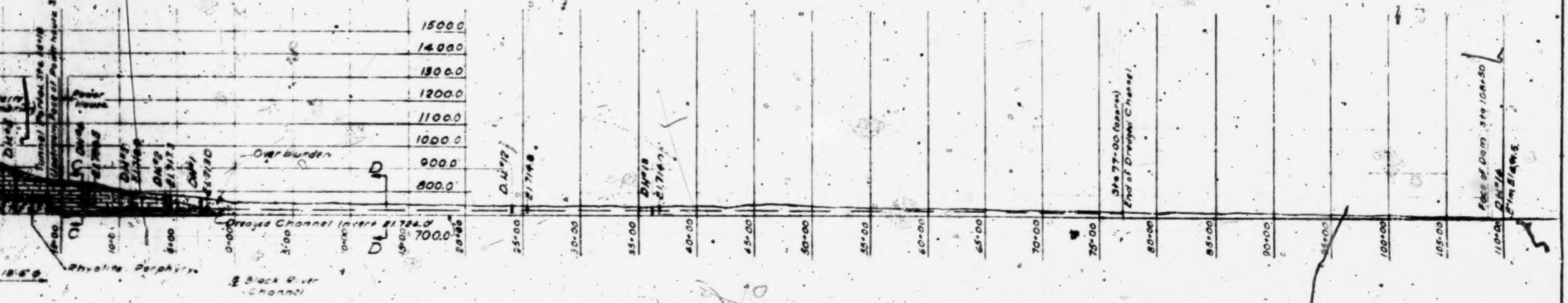
Scale of Plan

Profile of Access road to Plaza
Scale 1"=100'

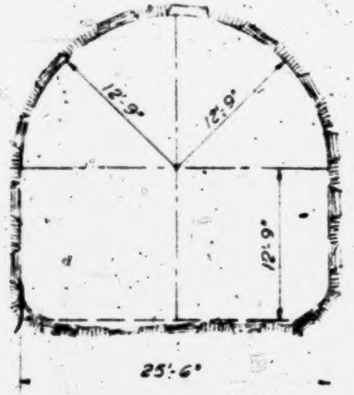
Profile of Access road to Switch Yard
Scale 1"=100'

Elevation of Downstream Face of Powerhouse
Scale 1"=50'

EXHIBIT 3 C

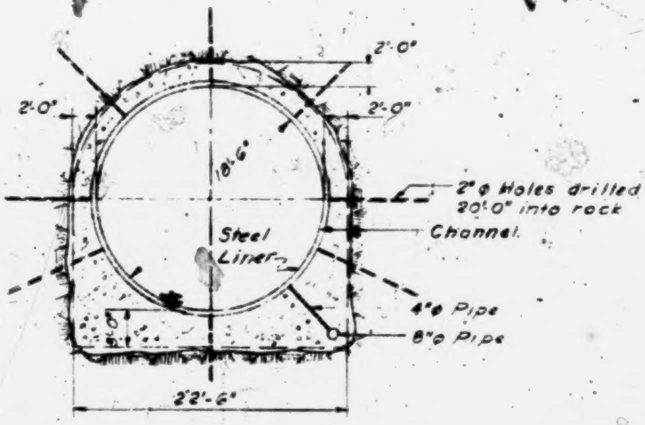

1500.0
1400.0
1300.0
1200.0
1100.0
1000.0
900.0
800.0
700.0
Power House
Tunnel Portal Sta 18+18
Upstream Face of Power House Sta 15+10
Overburden
D
D
Dredged Channel Invert El 724.0'
D.H. #12 El 714.8
DH #18 El 714.0
Sta 77+00 (approx) End of Dredged Channel
Face of Dam Sta 108+50
DH #16 Rim El 9n.5
Rhyolite Porphyry
℄ Black River Channel
18'-6" ø
15+00
10+00
5+00
0+00
5+00
10+00
15+00
20+00
25+00
30+00
35+00
40+00
45+00
50+00
55+00
60+00
65+00
70+00
75+00
80+00
85+00
90+00
95+00
100+00
105+00
110+00

PROFILE OF WATER CONDUIT & CHANNEL
Scale: Hor. 1" = 600'
Vert. 1" = 300'

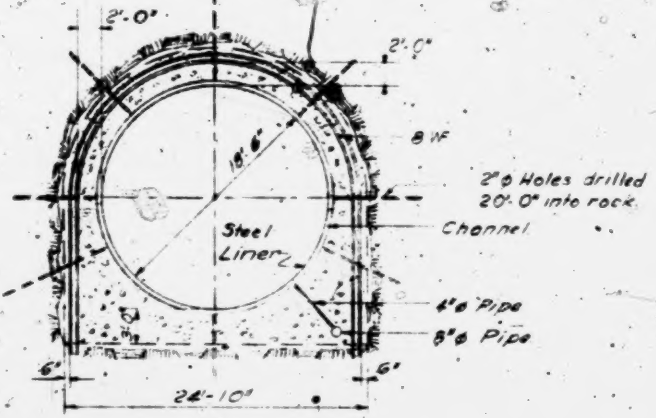

12'-9"
12'-9"
12'-9"
25'-6"

SECTION A-A
Scale 1/8" = 1'-0"

n.

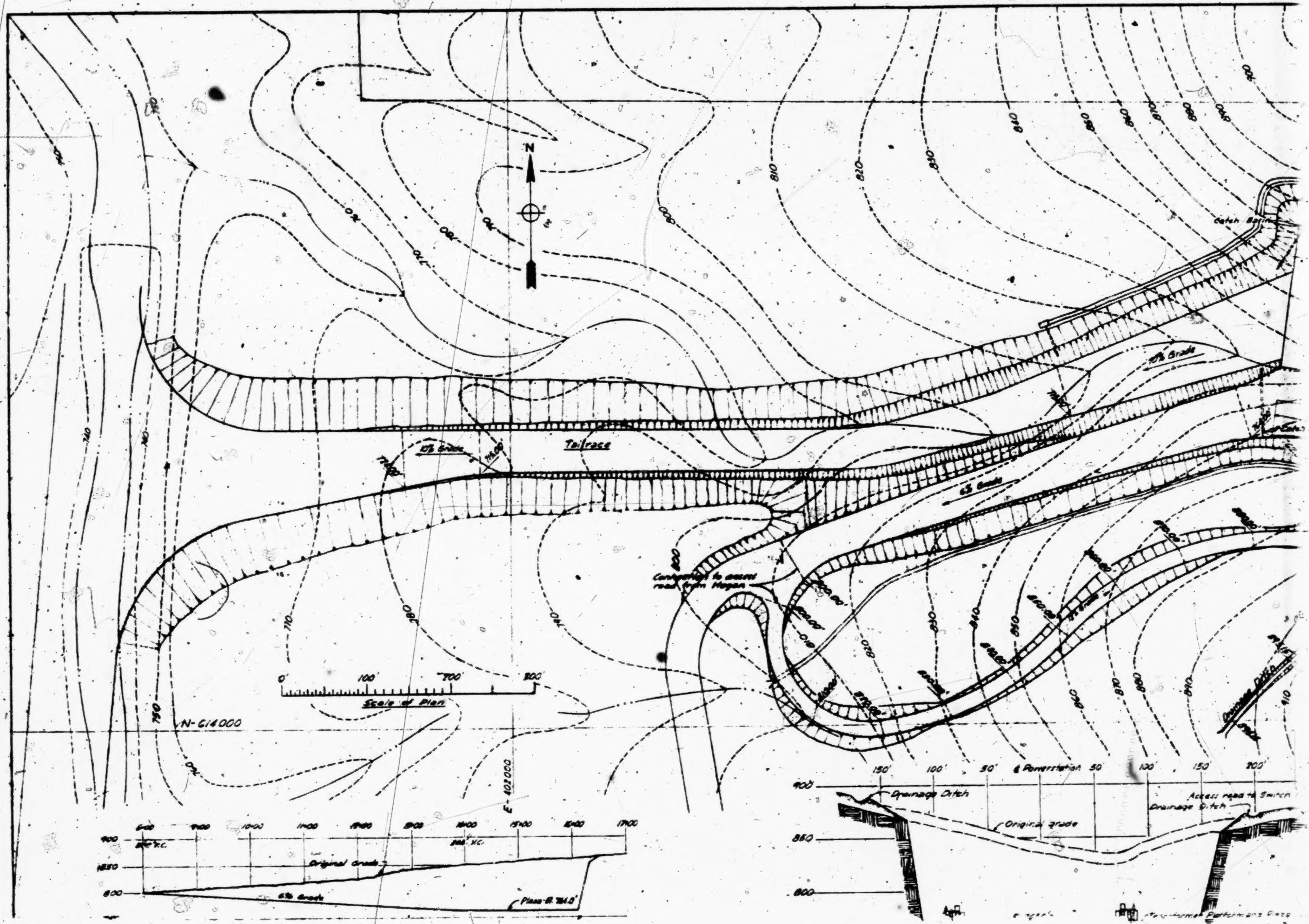

2'-0"
2'-0"
2'-0"
18'-6"
Steel Liner
2" ø Holes drilled 20'-0" into rock
Channel
4" ø Pipe
8" ø Pipe
22'-6"

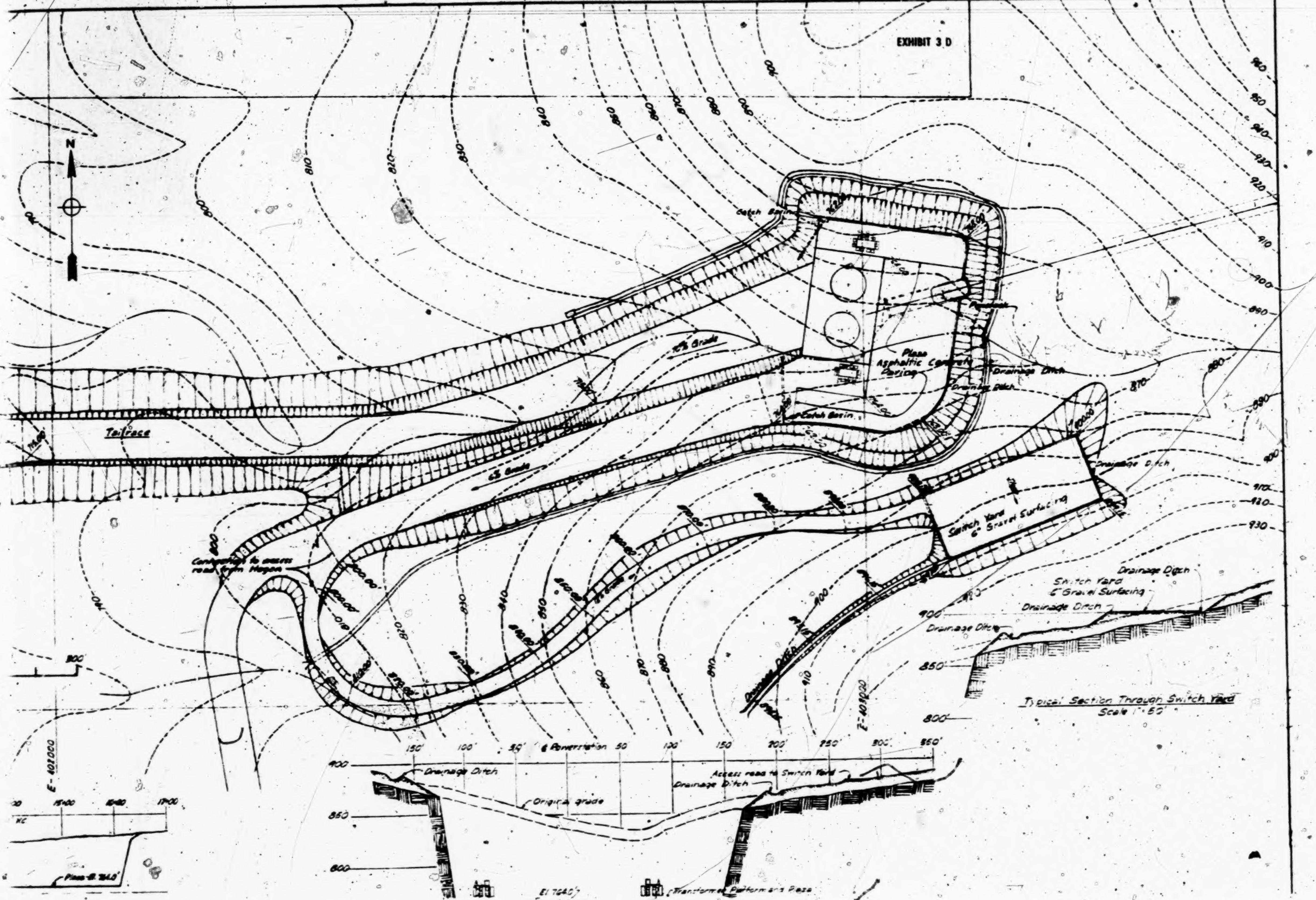
SECTION B-B
Unsupported
Scale 1/8" = 1'-0"

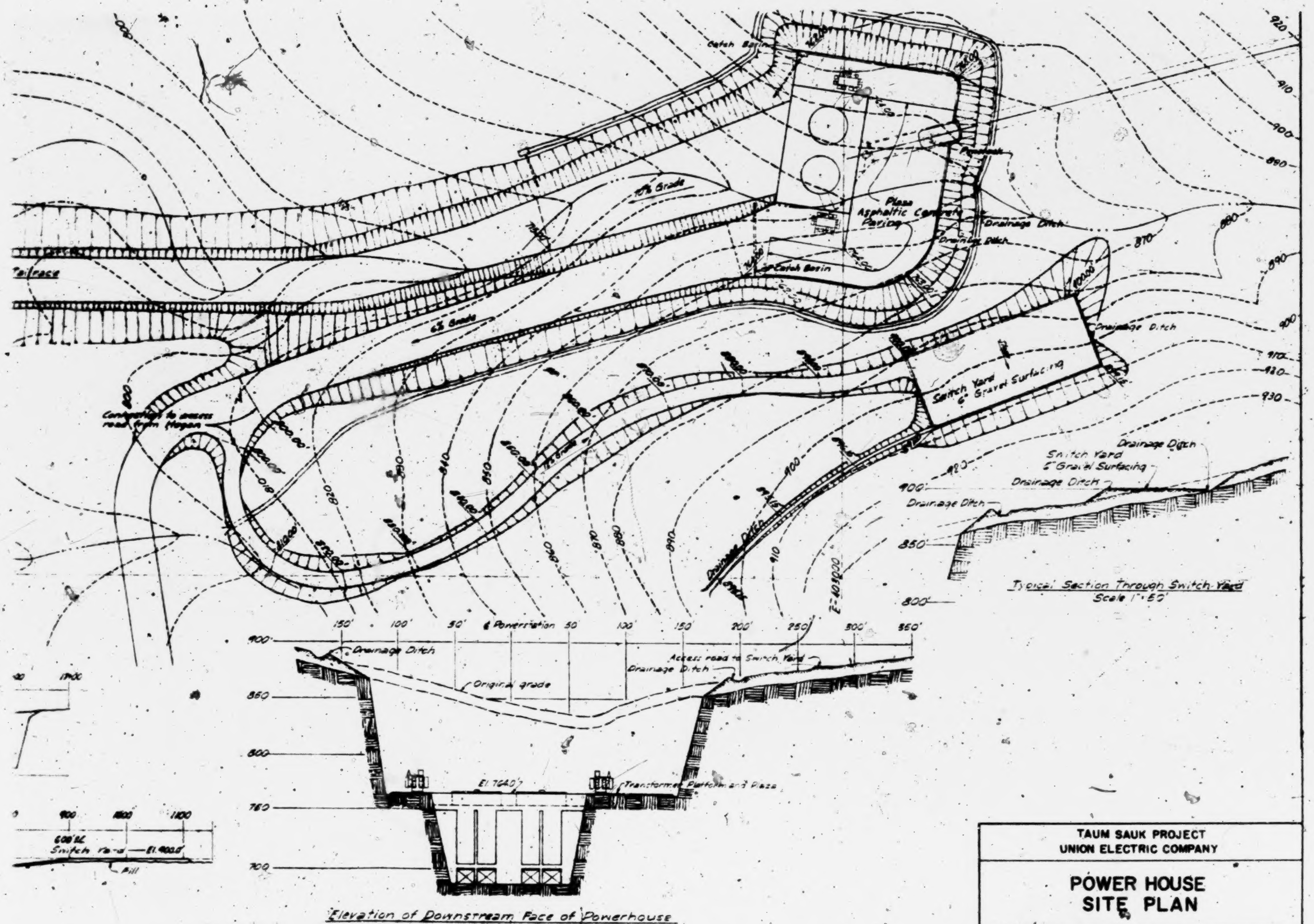

2'-0"
2'-0"
8 WF
18'-6"
Steel Liner
2" ø Holes drilled 20'-0" into rock
Channel
4" ø Pipe
8" ø Pipe
6"
6"
24'-10"

SECTION B-B
Supported
Scale 1/8" = 1'-0"

EXHIBIT 3 D


N
Catch Basin
1% Grade
Tailrace
1% Grade
6% Grade
Connection to access road from Wagon
Scale of Plan
0'
100'
200'
300'
N-614000
E-401000
E-402000
150'
100'
50'
℄ Powerstation
50
100'
150
200'
Drainage Ditch
Access road to Switch Yard
Drainage Ditch
Original grade
900
850
800
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
Original Grade
6% Grade
Plaza-El. 784.0'
Transformer Platform Plaza


N
Catch Basin
1% Grade
Plaza
Asphaltic Concrete Paving
Drainage Ditch
Drainage Ditch
Catch Basin
Tailrace
6% Grade
Connection to access road from Wagon
Switch Yard
6" Gravel Surfacing
Drainage Ditch
Drainage Ditch
Switch Yard
6" Gravel Surfacing
Drainage Ditch
Drainage Ditch
Typical Section Through Switch Yard
Scale 1"=50'
900
850
800
E-401000
E-402000
150'
100'
50'
℄ Powerstation
50
100'
150
200'
250'
300'
350'
Drainage Ditch
Access road to Switch Yard
Drainage Ditch
Original grade
15+00
16+00
17+00
Plaza-El. 784.0'
El. 784.0'
Transformer Platform Plaza


Catch Basin
Plaza
Asphaltic Concrete
Paving
Penstock
Drainage Ditch
Drainage Ditch
Catch Basin
10% Grade
6% Grade
Tailrace
Connection to access road from Hogan
Switch Yard
6" Gravel Surfacing
Drainage Ditch
Drainage Ditch
920
910
900
890
880
870
860
850
840
830
820
810
800
930
Switch Yard
6" Gravel Surfacing
Drainage Ditch
Drainage Ditch
900'
850'
800'
150'
100'
50'
℄ Powerstation
50
100'
150'
200'
250'
300'
350'
900'
850
800
750
700
Drainage Ditch
Original grade
Access road to Switch Yard
Drainage Ditch
El. 764.0'
Transformer Platform and Plaza
900
1000
1100
600' ℄
Switch Yard
El. 900.0
Fill

Typical Section Through Switch Yard
Scale 1" = 50'

Elevation of Downstream Face of Powerhouse
Scale: 1" = 50'

TAUM SAUK PROJECT
UNION ELECTRIC COMPANY

# POWER HOUSE
# SITE PLAN

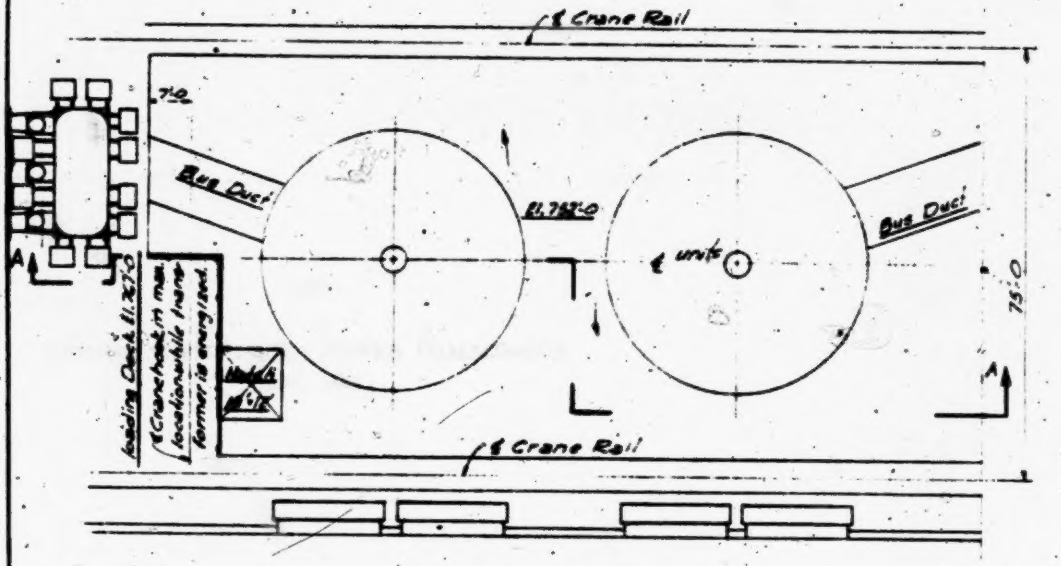
SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS – ARCHITECTS
ST. LOUIS, MO.

| | | |
|---|---|---|
| DRAWN J.F.B. | SCALE As Noted | DRAWING NUMBER<br>1630-4 |
| | DATE 3-4-59 | |

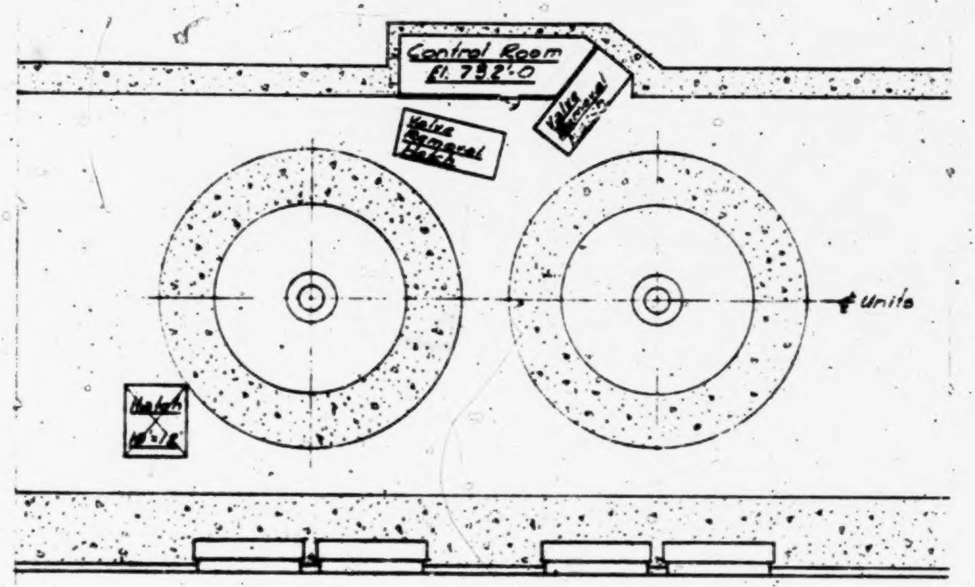
# BEFORE THE FEDERAL POWER COMMISSION

[193–194]

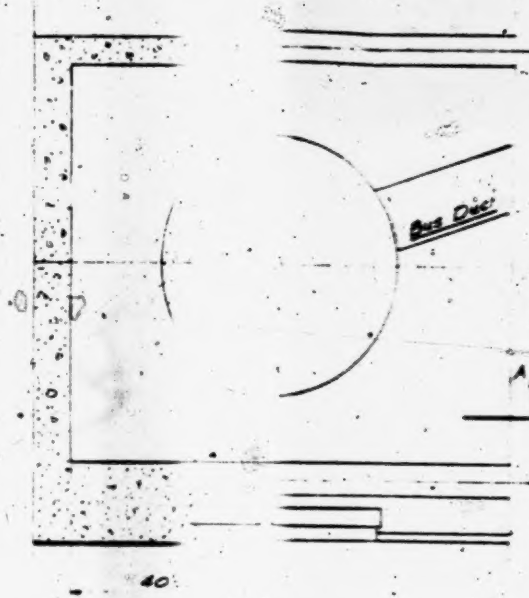
EXHIBIT 3 E

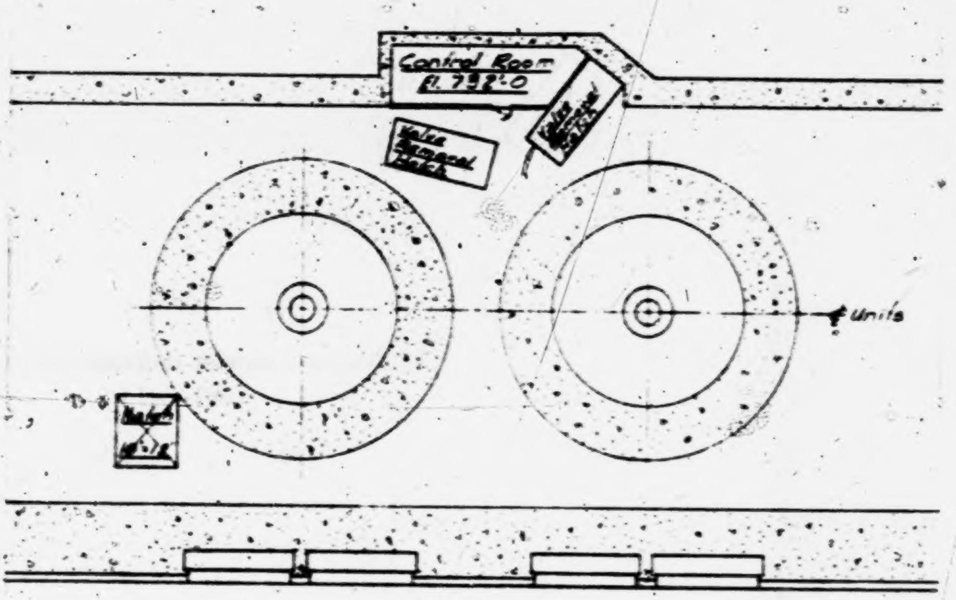

℄ Crane Rail
7'-0
Bus Duct
El. 752'-0
℄ units
Bus Duct
75'-0
A
A
Loading Dock El. 757'-0
℄ Crane hook in max. location while transformer is energized
Hatch 16'×16'
℄ Crane Rail

PLAN AT El. 764.0'

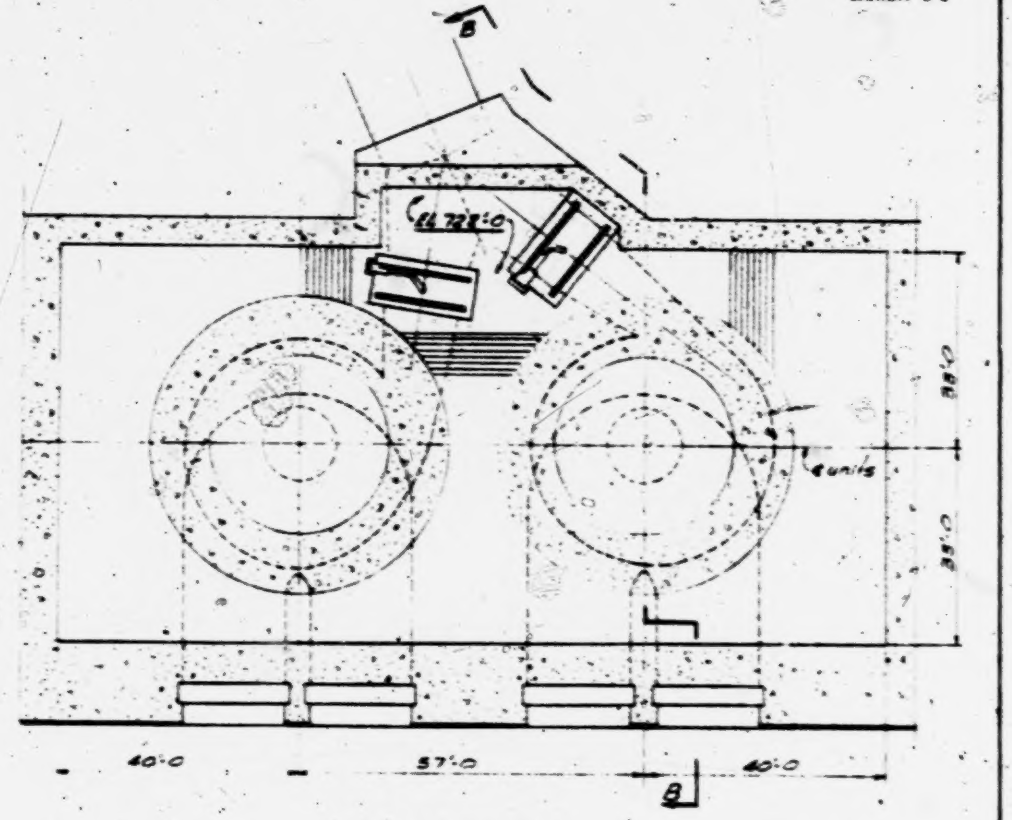

Control Room
El. 732'-0
Valve Removal Hatch
Valve Removal
Hatch 16'×16'
℄ Units

PLAN AT El. 732.0'

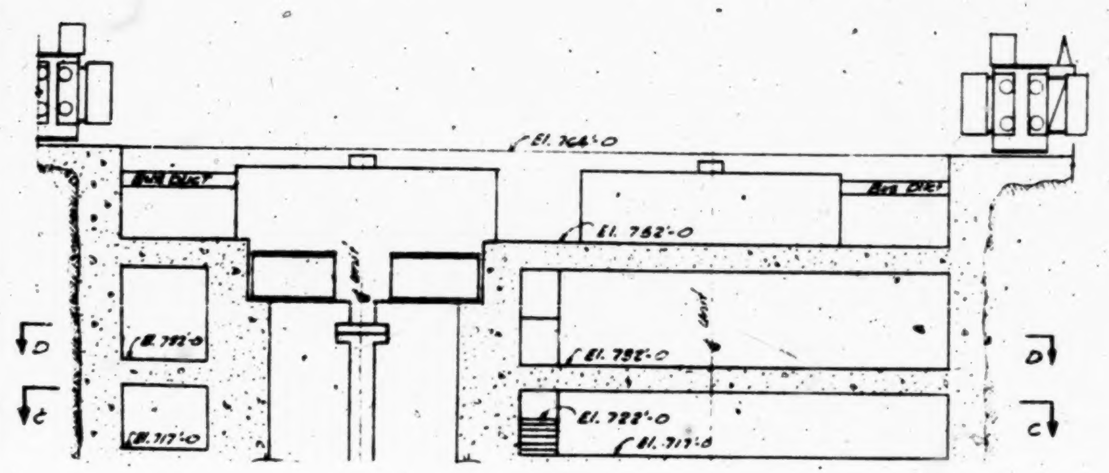

Bus Duct
75'-0
40

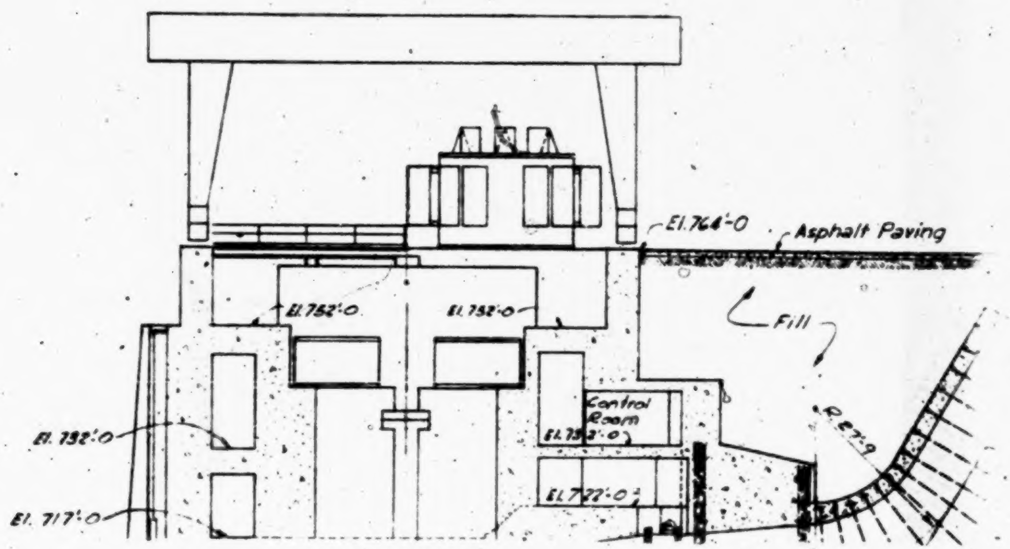

Control Room
El. 732'-0
Valve Removal Hatch
Valve Removal
Hatch 16'×16'
℄ Units

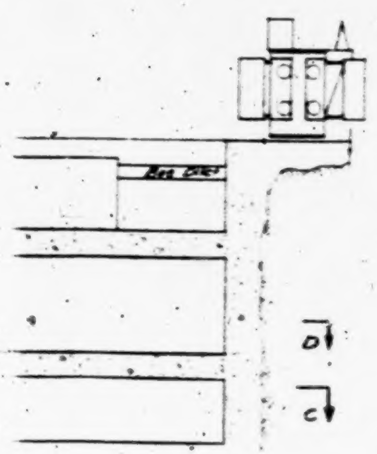
PLAN AT El. 732.0'

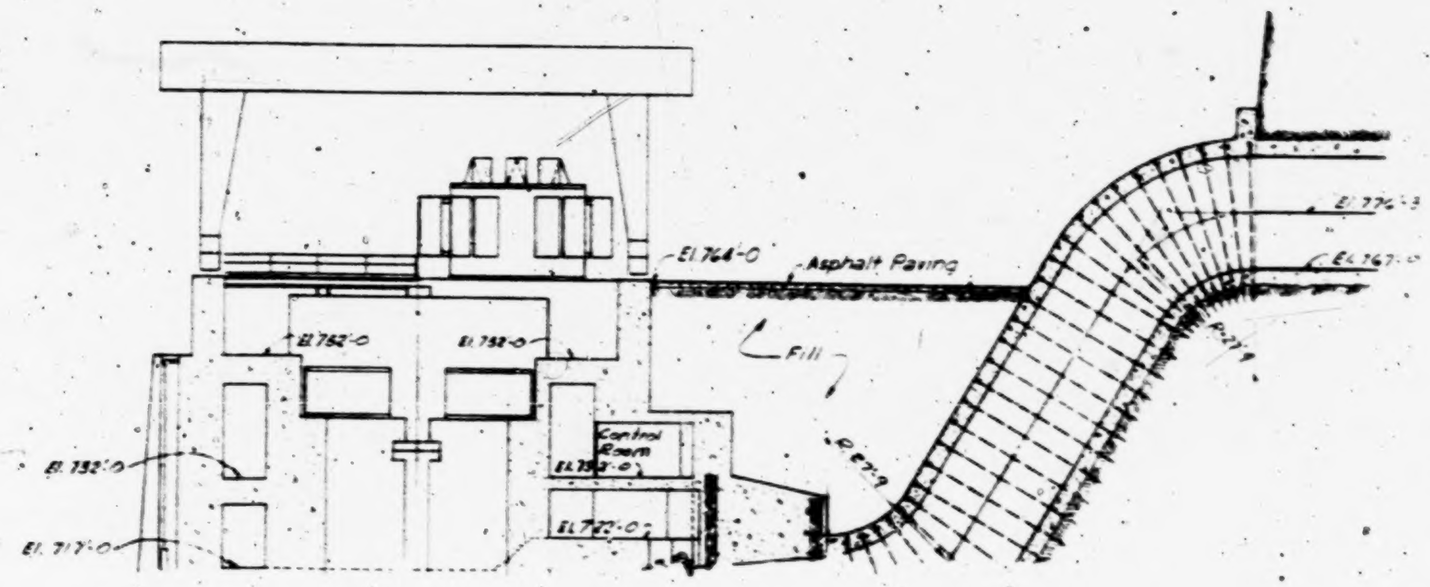

B
El. 722'-0
℄ units
38'-0
35'-0
40'-0
57'-0
40'-0
B

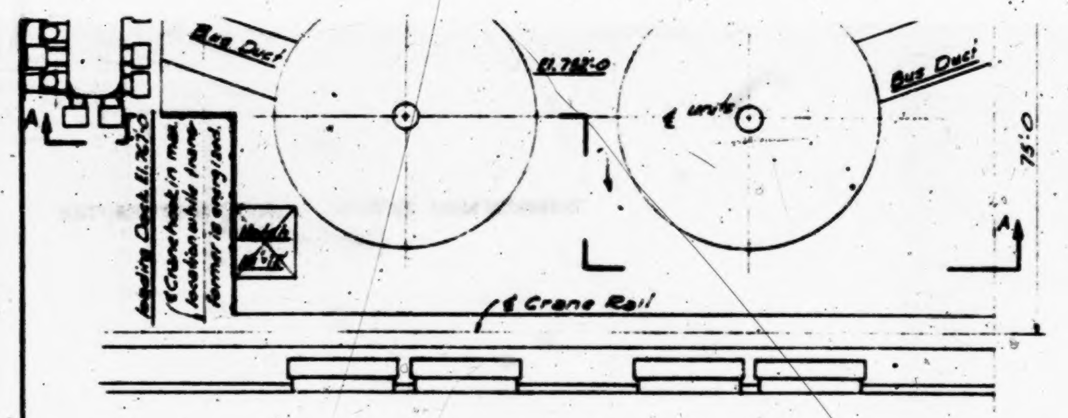
PLAN AT El. 717.0'


El. 764'-0
Bus Duct
Bus Duct
El. 752'-0
℄ unit
℄ unit
El. 732'-0
El. 732'-0
El. 722'-0
El. 717'-0
El. 717'-0
D
C
D
C

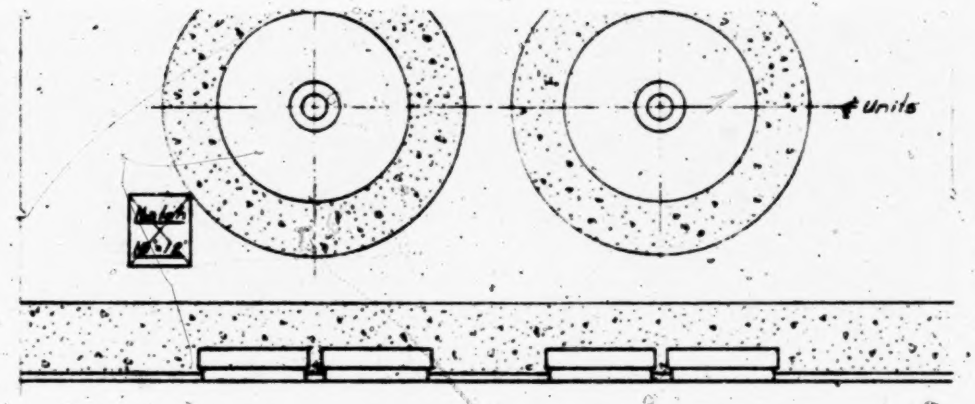

El. 764'-0
Asphalt Paving
El. 752'-0
El. 752'-0
Fill
Control Room
El. 732'-0
El. 722'-0
R. 27'-9
El. 732'-0
El. 717'-0



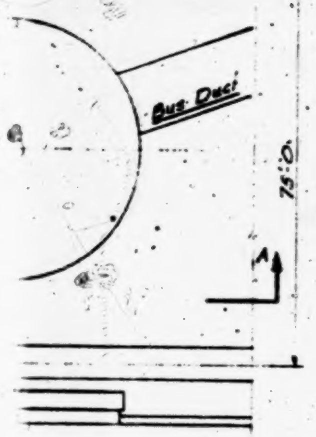

El. 764'-0
Asphalt Paving
El. 752'-0
El. 752'-0
Fill
Control Room
El. 732'-0
El. 722'-0
R. 27'-9
R. 27'-9
El. 776'-3
El. 767'-0
El. 732'-0
El. 717'-0

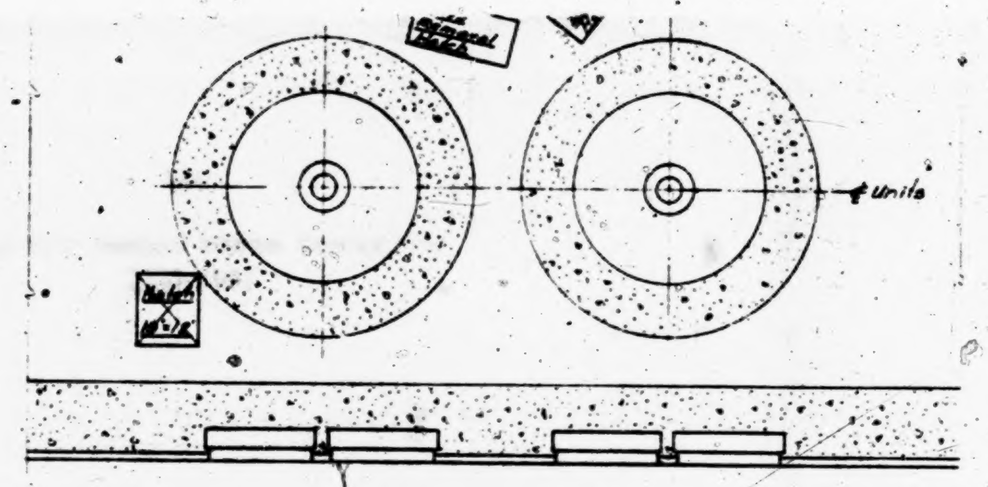

Bus Duct
El. 762'-0
℄ units
Bus Duct
75'-0
A
A
Landing Deck El. 767'-0
℄ Crane hook in max. location while transformer is energized.
Hatch
℄ Crane Rail

PLAN AT El. 764.0'

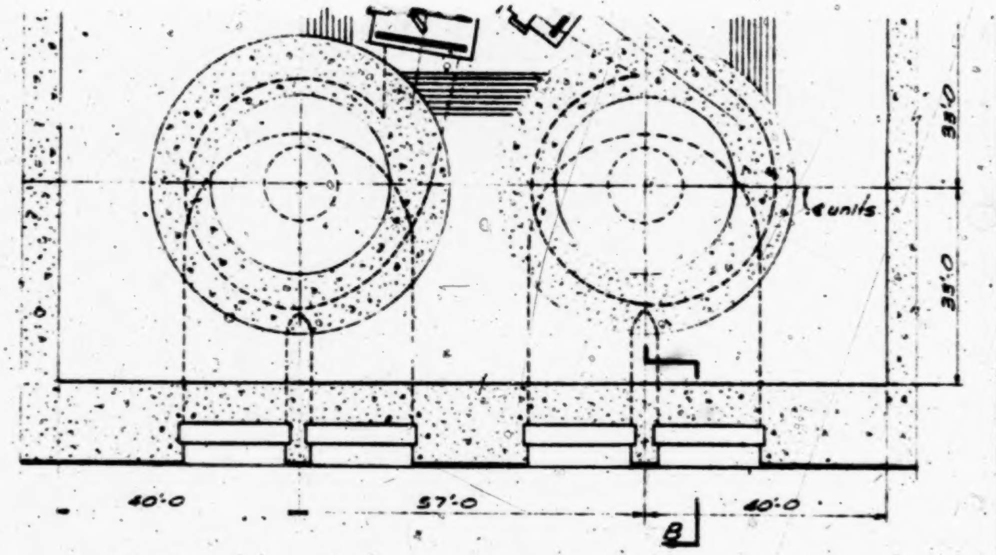

℄ Units
Hatch

PLAN AT El. 732.0'

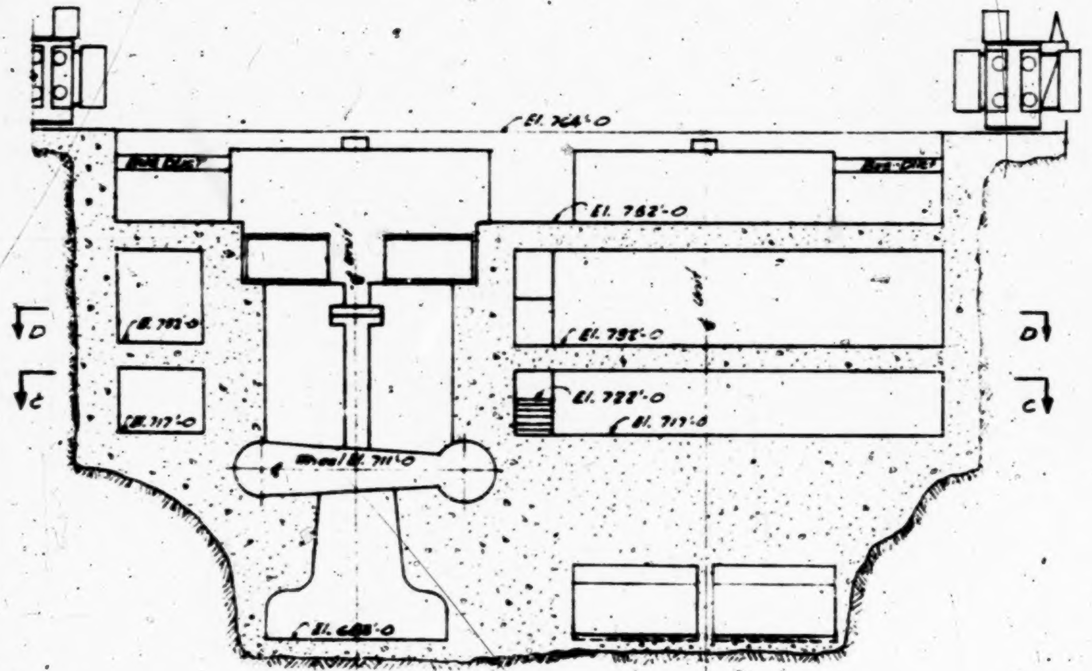

Bus Duct
75'-0
A


Removal Hatch
℄ Units
Hatch

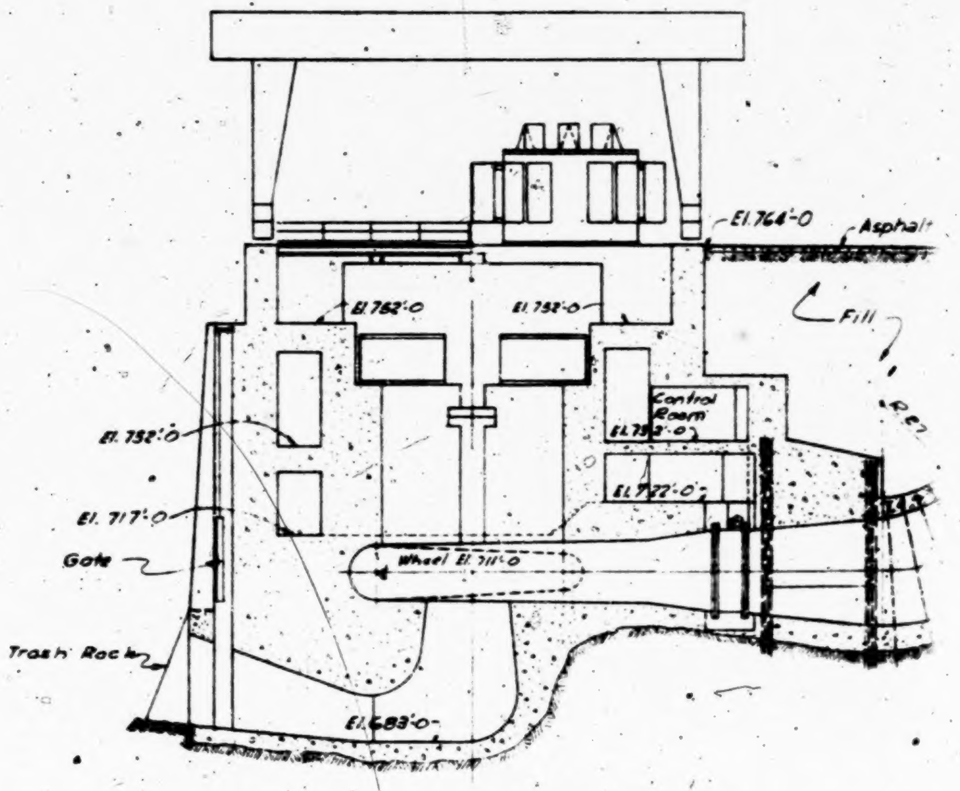
PLAN AT El. 732.0'


33'-0
33'-0
℄ units
40'-0
57'-0
40'-0
B

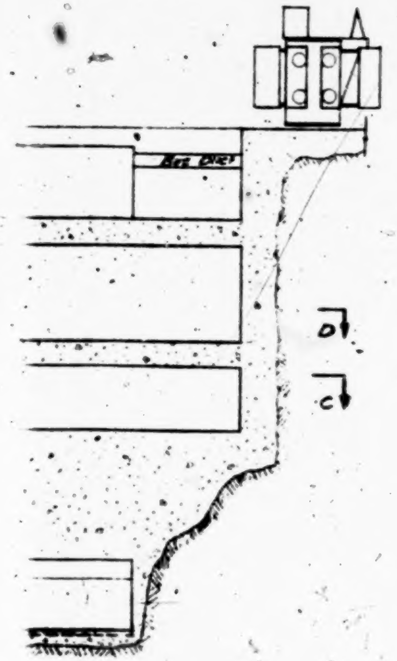
PLAN AT El. 717.0'

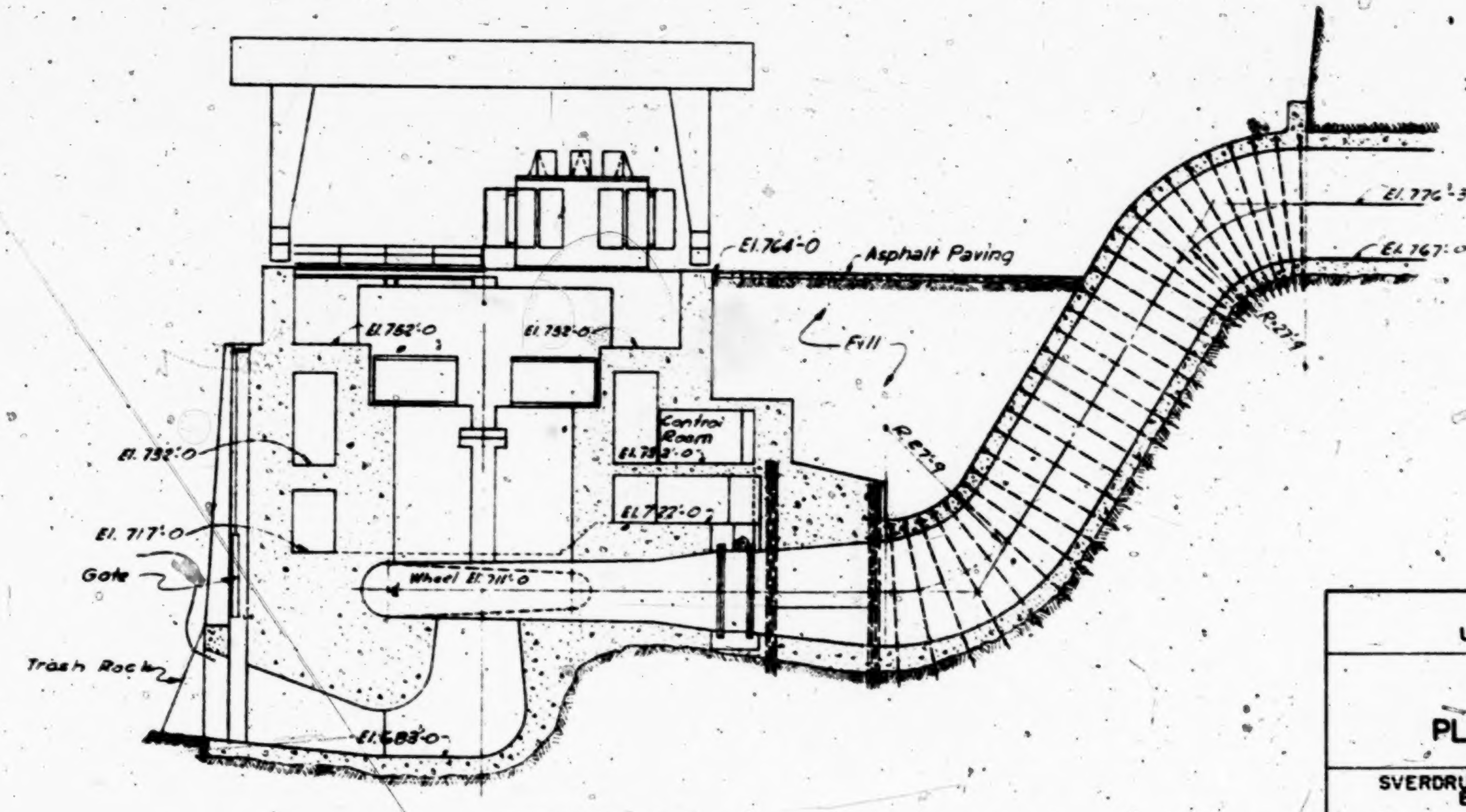

El. 764'-0
Bus Duct
Bus Duct
El. 762'-0
℄ Unit
℄ Unit
D
D
C
C
El. 732'-0
El. 732'-0
El. 722'-0
El. 717'-0
El. 717'-0
Wheel El. 711'-0
El. 683'-0

SECTION A-A


El. 764'-0
Asphalt
Fill
El. 762'-0
El. 752'-0
Control Room
El. 752'-0
El. 732'-0
El. 722'-0
El. 717'-0
Gate
Wheel El. 711'-0
Trash Rack
El. 683'-0

SECTION B-B




El. 764'-0
Asphalt Paving
El. 776'-3
El. 767'-0
Fill
R. 27'-9
R. 27'-9
El. 762'-0
El. 752'-0
Control Room
El. 752'-0
El. 732'-0
El. 722'-0
El. 717'-0
Gate
Wheel El. 711'-0
Trash Rack
El. 683'-0

SECTION B-B

TAUM SAUK PROJECT
UNION ELECTRIC COMPANY

## POWER HOUSE
## PLANS & SECTIONS

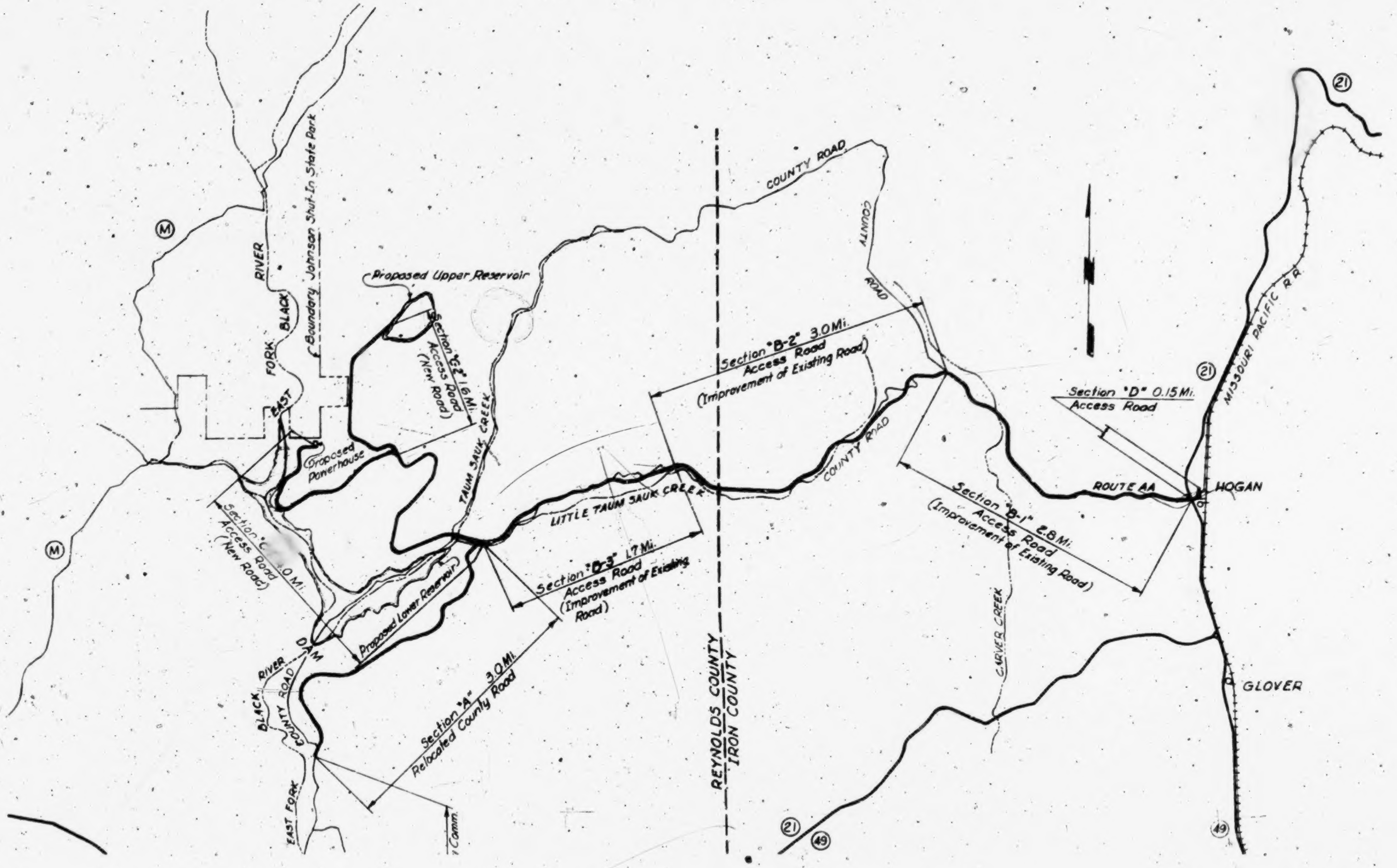
SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS - ARCHITECTS
ST. LOUIS, MO.

| | | |
|---|---|---|
| DRAWN B.H. | SCALE 1/16"=1'-0 | DRAWING NUMBER<br>1630-5 |
| | DATE 3-6-59 | |

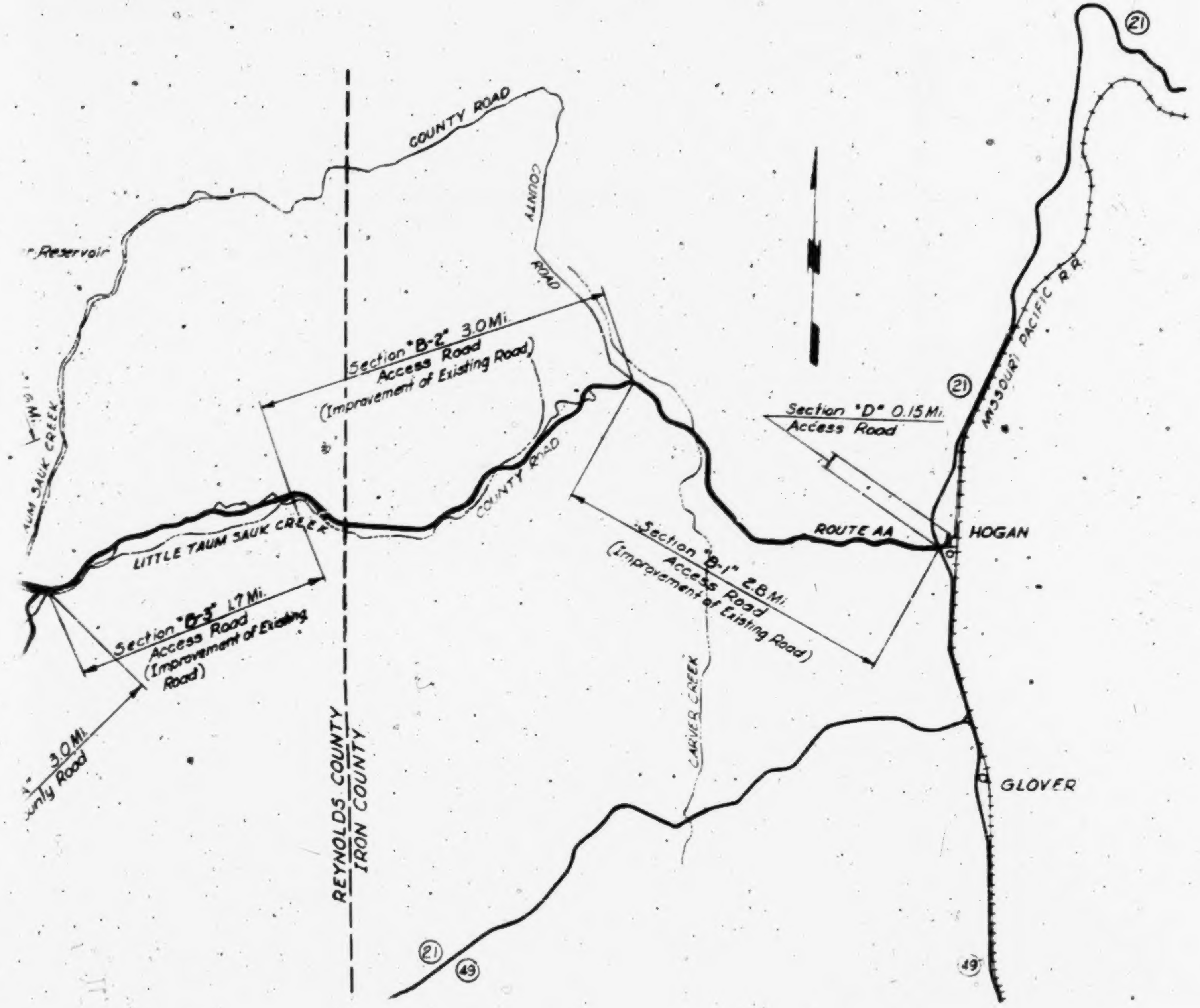
## BEFORE THE FEDERAL POWER COMMISSION

[195–196]

EXHIBIT 3 G

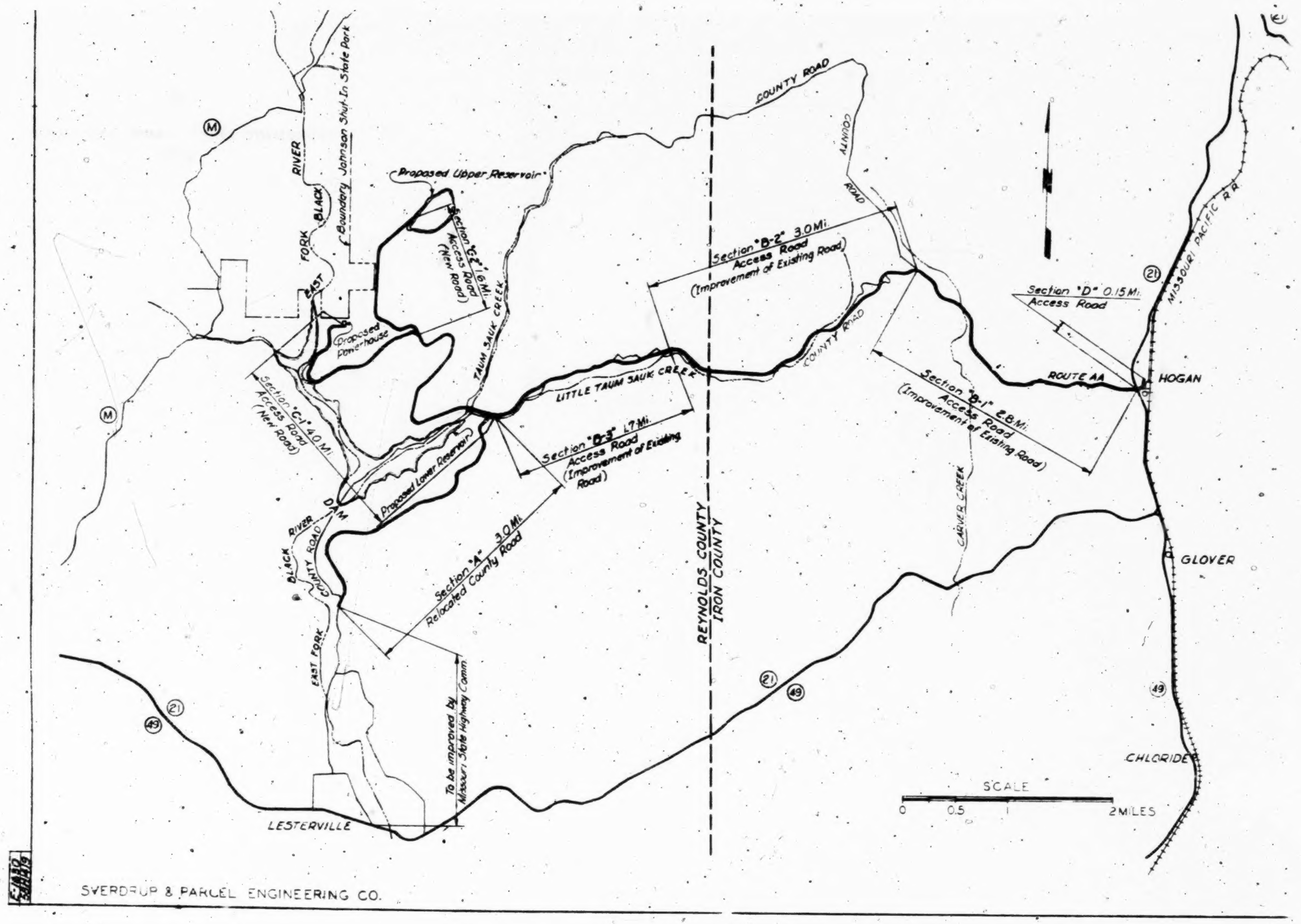


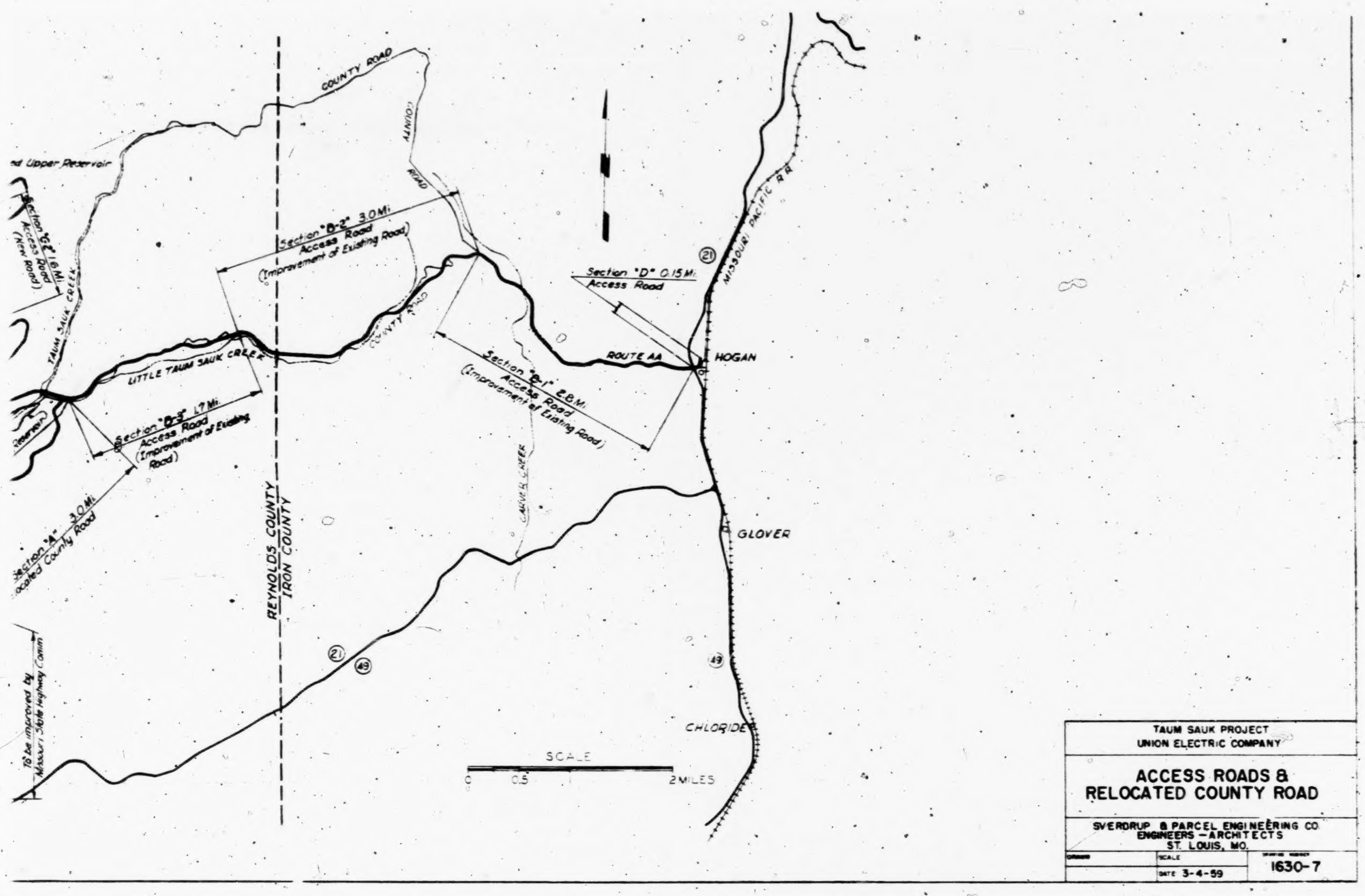
Boundary Johnson Shut-In State Park
EAST FORK BLACK RIVER
M
M
Proposed Upper Reservoir
Section "C-2" 1.6 Mi.
Access Road
(New Road)
Proposed Powerhouse
TAUM SAUK CREEK
Section "C" 1.0 Mi.
Access Road
(New Road)
Proposed Lower Reservoir
DAM
BLACK RIVER
COUNTY ROAD
EAST FORK
Section "A" 3.0 Mi.
Relocated County Road
LITTLE TAUM SAUK CREEK
Section "B-3" 1.7 Mi.
Access Road
(Improvement of Existing Road)
Section "B-2" 3.0 Mi.
Access Road
(Improvement of Existing Road)
COUNTY ROAD
COUNTY ROAD
COUNTY ROAD
REYNOLDS COUNTY
IRON COUNTY
Section "B-1" 2.8 Mi.
Access Road
(Improvement of Existing Road)
CARVER CREEK
ROUTE AA
HOGAN
Section "D" 0.15 Mi.
Access Road
MISSOURI PACIFIC R.R.
21
21
21
49
49
GLOVER



Reservoir
M
TAUM SAUK CREEK
LITTLE TAUM SAUK CREEK
Section "B-3" 1.7 Mi.
Access Road
(Improvement of Existing Road)
3.0 Mi.
unty Road
Section "B-2" 3.0 Mi.
Access Road
(Improvement of Existing Road)
COUNTY ROAD
COUNTY ROAD
COUNTY ROAD
REYNOLDS COUNTY
IRON COUNTY
Section "B-1" 2.8 Mi.
Access Road
(Improvement of Existing Road)
CARVER CREEK
ROUTE AA
HOGAN
Section "D" 0.15 Mi.
Access Road
MISSOURI PACIFIC R.R.
21
21
21
49
49
GLOVER

749-114 O - 64 (Face p. 186)


M
Boundary Johnson Shut-In State Park
EAST FORK BLACK RIVER
Proposed Upper Reservoir
Section "C-2" 1.6 Mi. Access Road (New Road)
Proposed Powerhouse
Section "C-1" 3.0 Mi. Access Road (New Road)
M
TAUM SAUK CREEK
Proposed Lower Reservoir
DAM
BLACK RIVER
COUNTY ROAD
EAST FORK
Section "A" 3.0 Mi. Relocated County Road
To be improved by Missouri State Highway Comm.
LITTLE TAUM SAUK CREEK
Section "B-3" 1.7 Mi. Access Road (Improvement of Existing Road)
COUNTY ROAD
Section "B-2" 3.0 Mi. Access Road (Improvement of Existing Road)
COUNTY ROAD
Section "B-1" 2.8 Mi. Access Road (Improvement of Existing Road)
CALVER CREEK
REYNOLDS COUNTY
IRON COUNTY
Section "D" 0.15 Mi. Access Road
ROUTE AA
HOGAN
21
MISSOURI PACIFIC R.R.
GLOVER
49
CHLORIDE
21
49
21
49
LESTERVILLE
SCALE
0 0.5 1 2 MILES
E-1630 3-4-59
SVERDRUP & PARCEL ENGINEERING CO.


Upper Reservoir
Section "C-2" 1.6 Mi. Access Road (New Road)
TAUM SAUK CREEK
Section "A" 3.0 Mi. Relocated County Road
To be improved by Missouri State Highway Comm.
COUNTY ROAD
COUNTY ROAD
LITTLE TAUM SAUK CREEK
Section "B-3" 1.7 Mi. Access Road (Improvement of Existing Road)
Section "B-2" 3.0 Mi. Access Road (Improvement of Existing Road)
Section "B-1" 2.8 Mi. Access Road (Improvement of Existing Road)
CALVER CREEK
REYNOLDS COUNTY
IRON COUNTY
Section "D" 0.15 Mi. Access Road
ROUTE AA
HOGAN
21
MISSOURI PACIFIC R.R.
GLOVER
21
49
49
CHLORIDE
SCALE
0 0.5 1 2 MILES
TAUM SAUK PROJECT
UNION ELECTRIC COMPANY
ACCESS ROADS & RELOCATED COUNTY ROAD
SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS - ARCHITECTS
ST. LOUIS, MO.
DRAWN
SCALE
DATE 3-4-59
DRAWING NUMBER
1630-7

## BEFORE THE FEDERAL POWER COMMISSION

[197]

[198] Before the Federal Power Commission

*Exhibit 4 A*

Union Electric Company 315 North Twelfth Boulevard
Saint Louis 1, Missouri

*February 24, 1960.*

Federal Power Commission,
*Washington 25, D.C.*

Attention: Mr. J. H. Gutride, Secretary.

Gentlemen: Re: Declaration of Intention by Union Electric Company, Docket No. E-6927.

In a letter to the Commission, dated January 18, 1960, we stated that we were taking steps to gain the approval of various regulatory bodies in the State of Missouri for the construction and operation of the proposed Taum Sauk project.

Accordingly, we wish to inform you that we have now gained the approval of the Missouri Public Service Commission and the County Court of Reynolds County, Missouri: Copies of the orders granting permission and authority are enclosed for your information.

Very truly yours,

(Signed) John A. Woodbridge,
John A. Woodbridge,
*Vice President and General Counsel.*

Enclosures

bc: Mr. W. R. Farley,
*Chief, Licensed Projects Division.*

---

[199] Before the Federal Power Commission

*Exhibit 4 B*

Before the Public Service Commission of the State of Missouri
Case No. 14,390

In the matter of the application by Union Electric Company for permission and authority to construct, operate and maintain a pumped storage generating station in Reynolds County, Missouri.

Appearances: Charles J. Dougherty and Duane A. Patterson, 315 N. 12th Blvd., St. Louis 1, Missouri, for the Applicant. **Glenn D. Evans** and **Thomas J. Downey**, for the Commission.

### REPORT AND ORDER

By its application filed in Case No. 14,390 on January 20, 1960, Union Electric Company (hereinafter referred to as "Company") requested permission and authority under Section 393.170, R.S. Mo. 1949, to construct, operate and maintain a pumped-storage electric generating station in Reynolds County, Missouri.

After due notice to all interested parties, a hearing upon the application was held on February 10, 1960 in the Commission's hearing room at Jefferson City, Missouri. Appearances were as noted above.

### FINDINGS OF FACT

Based on the testimony and exhibits received at the hearing the Commission finds the following facts:

Company is a corporation duly organized and existing under and by virtue of the laws of the State of Missouri, with its principal executive office at 315 North Twelfth [200] Boulevard, St. Louis 1, Missouri, and is engaged, as a public utility subject to the jurisdiction of this Commission, in rendering electric service in eastern and central Missouri and heating service in a limited portion of downtown St. Louis. It is also engaged in rendering electric service in portions of Illinois and gas service in Alton, Illinois and vicinity, as a public utility under the jurisdiction of the Illinois Commerce Commission, as well as electric service in southern Iowa.

The all-time peak demand of 1,857,000 kilowatts on Company's system was experienced in August, 1959, and Company estimates that such peak demand will increase to 2,353,000 kilowatts by the summer of 1963. With provision of 15% as a reserve and safety factor, this will require a total generating capacity of 2,706,000 kilowatts in 1963.

At the present time the total generating capacity of the Company's system, including two hydroelectric plants rated on the basis of normal river flow, is 1,935,000 kilowatts. After completion in 1961 of its Meramec Unit No. 4 (now under construction) and after adjustments which take into consideration generating capacity to be available from other sources, Company's estimated generating capacity in 1963 would be 2,371,000 kilowatts, which is 335,000 kilowatts short of the estimated requirements at such time.

Company proposes to provide the additional required generating capacity by construction of a high head pumped storage electric generating station to be located on and near the East Fork of the Black River in Reynolds County, Missouri. The specific location of the proposed plant is shown on Company's Exhibit "A" which was received in evidence herein. Such plant, which under normal operating conditions will have a rated capacity of 350,000 kilowatts, will consist of five major components: a small dam, a lower pool, an upper pool, a waterway and a pumping and generating station. The proposal contemplates that a small (60 feet high and 350 feet long), concrete, free crest dam would be erected across the East Fork of the Black River just below the confluence of Taum [201] Sauk Creek in Reynolds County, Missouri, and would impound a pool (lower pool) with a total surface area of approximately 370 acres and a volume of approximately 6,000 acre feet; a smaller pool (upper pool) with a surface area of approximately 40 acres and a volume of approximately 4,000 acre feet would be constructed on top of an adjoining mountain by the erection of a rock filled dike; a pressure shaft and conduit would connect the upper pool with the pumping and generating station to be located on an open canal leading into the lower pool near its upstream boundary. The pumping and generating station would be equipped with two main units each of which would consist of a reversible pump-turbine directly connected to a reversible generator-motor. Using electric energy available to Company from its own and interconnected systems, the units would be used to pump water from the lower pool to the upper pool through the conduit. To generate, water from the upper pool would pass through the conduit and the units, operating as turbines, and back into the lower pool.

Company proposes to operate the plant for the purposes of carrying peak loads, providing emergency generating capacity and as otherwise may be appropriate in the operation of its system. The size of the upper pool will be such that the plant will be able to generate at rated capability for approximately eight hours. Exhibit "D" received in evidence shows a proposed cycle of operation, pumping at night during off-peak hours and generating during the peak hours, repeating the cycle day after day. Operating in this manner, Company will utilize steam generating equipment having low incremental fuel and operating costs and presently idle during off-peak hours, to generate energy which will, in effect, be stored in the upper pool for use during the peak-load hours of the day or as otherwise required.

Company's evidence was that the initial cost of the proposed plant would be an estimated $40,000,000, without the required transmission facilities, and $50,000,000 including transmission facilities, which is approximately $29,500,000 less than the cost of providing a similar amount of capacity at a new stream plant. In addition to [202] the lower fixed costs resulting from the lower capital investment, the Company's study also shows that substantial economies would accrue to the Company and its customers because of lower operating costs of the proposed plant.

Company stated that it will inter-connect the proposed plant with the other generating plants in its system; and that when the route and plans for the transmission line from the proposed plant are determined, Company will file a separate application for authority and permission to construct, operate and maintain same.

Construction of the proposed project will affect Black River Electric Cooperative which has distribution facilities in the area that will become the lower pool. Said Cooperative was given formal notice of the application and hearing but did not enter an appearance. Company introduced in evidence, as Exhibit "B", a letter agreement executed by officers of Company and Black River Electric Cooperative under the terms of which the Cooperative would, at Company's expense, effect such relocation or removal of Cooperative facilities as may be necessary.

Company introduced in evidence as Exhibit "C" a certified copy of an order of the County Court of Reynolds County, Missouri, dated December 21, 1959, which order granted to Company a franchise to construct, operate and maintain the proposed plant and related transmission lines in said County.

Company proposes to finance the construction of the proposed plant out of funds to be available in its treasury, a substantial part of which will be obtained from new financing; the amount and nature of such financing to be submitted to the Commission for approval as and when the funds are required.

## CONCLUSION

After due consideration of all the evidence presented, the Commission is of the opinion that the proposed construction is in the public interest and that the authority as requested should be granted.

[203] It is, therefore,

Ordered: 1. That Union Electric Company be and hereby is authorized to construct, operate and maintain a pumped-storage electric generating station to be known as its "Taum Sauk Plant", in Reynolds County, Missouri, as shown on Exhibit "A", as received in evidence, which is hereby referred to and made a part hereof.

Ordered: 2. That this order shall take effect on March 9, 1960, and the Secretary of this Commission shall forthwith serve on all parties interested herein, a certified copy of this report and order.

By the Commission:

Patricia Nacy,

[SEAL] PATRICIA NACY, *Secretary.*

BURTON, Chm., McCLINTOCK, McDONALD, BARTON and IUEN, CC., Concur.

Dated at Jefferson City, Missouri, this 23rd day of February, 1960.

STATE OF MISSOURI
*Office of the Public Service Commission*

I have compared the preceding copy with the orginal on file in this office, and I do hereby certify the same to be a correct transcript therefrom and of the whole thereof.

Witness my hand and seal of the Public Service Commission, at Jefferson City, this 23rd day of February, 1960.

PATRICIA NACY, *Secretary.*

**Before the Federal Power Commission**

*Exhibit 4C*

**November Term, 1959**

State of Missouri,
*County of Reynolds, ss.*

In the County Court of Reynolds County, on the 21st day of December, 1959, comes Union Electric Company, a Missouri corporation, and presents its petition praying for an order of this court; granting to it, said Union Electric Company, a permit or franchise to erect, construct, operate and maintain a pumped storage, electric generating station, with appurtenances appropriate thereto, and an electric transmission line or lines of poles, towers, conduits, wires, and other apparatus incident thereto, for the purpose of generating and transmitting electric energy, upon, along, under, across and over the public roads, highways and public places, including the streets, alleys and public places of unincorporated villages and towns in Reynolds County, State of Missouri, the same having been heard and considered by the court, it is ordered by the County Court of Reynolds County, State of Missouri, as follows:

> (1) That the right, permission, authority and franchise is hereby granted to and duly vested in said Union Electric Company, its successors, licensees and assigns to erect, construct, operate and maintain a pumped storage, electric generating station, with appropriate appurtenances thereto, and an electric transmission line or lines consisting of poles, towers, conduits, wires, and other apparatus incident thereto, upon, along, under, across and over the public roads, highways and public places, including the streets, alleys and public places of unincorporated villages and towns, in that part of Township 33 North, Range 2 East, which is situate in Reynolds County, Missouri, for the purpose of generating and transmitting electric energy for any and all purposes for which electricity may be required or used.

(2) That, in the erection, construction, operation

and maintenance of said electric transmission line or [205] lines, no poles or towers be installed, no wires or conductors be suspended, and no conduits be laid so as to, in any manner, interfere with the ordinary traffic and public use of the public roads and highways of this County.

J. C. Bowles, *Presiding Judge.*

State of Missouri,
*County of Reynolds, ss.*

I, L. M. Hackworth, Clerk of the County Court, in and for Reynolds County, Missouri, hereby certify that the above and foregoing is a true copy of the preceedings of the County Court of Reynolds County on the 21st day of December, 1959, as the same appears of record in my office.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said County at my office in Centerville, Missouri, this 21st day of December, 1959.

[seal] L. M. Hackworth, *Clerk of County Court.*

---

[206] Before the Federal Power Commission

*Exhibit 5*

(Copy)

State of Missouri, Public Service Commission,
Jefferson City, *March 1, 1960*

Federal Power Commission
*Washington 25, D.C.*

Attention: Mr. J. H. Gutride, Secretary

Re: Union Electric Company, Docket No. E-6927

Dear Sir: This will acknowledge your letter dated February 19, regarding the above proceeding together with Notice of Declaration of Intention, which shows that Union Electric Company has filed a Declaration of Intention to construct a hydroelectric project to be known as the Taum Sauk Project and to be located in Reynolds County, Missouri. According to the application, the proposed project will be operated for the purpose of carrying peak loads on the Company's system, for providing emergency generating capacity, and as otherwise appropriate to the operation of its system. We understand the Federal Power Commission will investigate this application and determine whether a license is necessary under the Federal Power Act or whether the project may be constructed merely upon compliance with the State laws.

This Commission has given consideration to the above filing and under the present understanding of the facts does not desire to invoke the Cooperative Provisions of the Plan, and does not desire a conference, the creation of a board, or a joint or concurrent hearing. In connection with this project this Commission desires to state, however, that an application was filed by the Company for permission and authority to construct, operate and maintain this generating station and a hearing was held thereon by this [207] Commission on February 10, 1960. Based upon all the evidence presented at such hearing, this Commission concluded that the proposed construction was in the public interest and granted authority to the Company as requested. For the better information of the Federal Power Commission, we are enclosing herewith a copy of the Order issued by the Missouri Commission on February 23, 1960, granting authority for this construction.

Since this filing would be advantageous to the general public of Missouri in the opinion of this Commission, we would appreciate receiving any future orders or filings made in regard thereto. We trust that this information and expression of opinion on this filing will be of some value to your Commission in its further consideration of this matter.

Yours very truly,

GLENN D. EVANS, *General Counsel.*

GDE/ph
Enclosure

AIR MAIL

*Mar. 21, 1960*

E. J. Shapiro, *Secretary*
*Union Electric Company*
*315 North Twelfth Boulevard*
*St. Louis 1, Missouri*

Gentlemen: In connection with the investigation of the proposed construction of the Taum Sauk pumped-storage hydroelectric project on the East Fork of the Black River, Missouri, the Commission Staff has examined exhibits filed as a part of the declaration of intention and will appreciate a clarification of sluice gate control and discharge data showing how the capability of discharge up to 2,000 cubic feet per second was obtained.

[208] It is noted that on page 8 of the declaration, you state:

> "Therefore, it is essential that after the initial charge of 6,000 acre feet has been secured none of the flow of the streams feeding the lower pool be retained."

The staff will appreciate information concerning proposed operation during such periods of time that inflow exceed the capacity of the sluice gates. This information should cover both the occasions when pumping causes a reduction in the flow downstream from the dam and the effects caused by the release of water during hours in which generation of power occurs when the level of the lower pool may have risen above the crest of the spillway due to inflow exceeding the capacity of the sluice gates.

Further, it will be appreciated if you will furnish either in tables or curves, the anticipated generator output versus turbine discharge at maximum head, also anticipated output of the pumps in cubic feet per second versus thousands of kilowatts imput from the system to the reversible generators at maximum, average, and minimum head.

J. H. Gutride, *Secretary*.

## Before the Federal Power Commission

*Exhibit 6A*

**(Copy)**

Union Electric Company,
315 North Twelfth Boulevard,
Saint Louis 1, Missouri, *March 29, 1960.*

Federal Power Commission
*Washington 25, D.C.*

Attention: Mr. J. H. Gutride, Secretary

Refer to E6927 Missouri

Gentlemen: In reply to your letter of March 21, we are pleased to submit the following information:

[209] We definitely propose to install a sluice or discharge valve in the lower dam large enough to pass a regulated flow up to 2000 cubic feet per second or more when the stage of the lower pool is at elevation 735. The maximum discharge with the lower pool full to the spillway crest elevation 750 will, of course be greater, upwards of 2800 cubic feet per second. The preliminary drawings which were sent forward at the same time the Declaration of Intention was filed but which were for information purposes only and not a part of the Declaration of Intention showed a 56″ diameter sluiceway which, of course, is too small to pass 2000 cubic feet per second under the head available. Investigation of stream flow after this drawing was completed resulted in a modification of the ideas set out in the preliminary drawing.

In order to evaluate the size of this sluice the entire period of record of stream flow at Annapolis was examined in an effort to find a period of high flow which would be considered most critical in the East Fork of the Black River. This period was then adjusted back to the dam site and flow factors relating to the operation of the pumped storage plant during a critical period in the systems peaking power requirements were applied to develop a pair of hydrographs. One showing the flow at the dam site in the absence of the dam and the other the flow down stream from the dam with the Taum Sauk plant in operation and the sluiceway with a capacity of 2000 cubic feet per second in service in the lower dam. Prints of these hydrographs are enclosed.

In examining these hydrographs it should be borne in mind that they are hypothetical studies based on a period of high flow which occurred once in the 20-year period of record compounded of the flow from 484 square miles of drainage area and referred back to an 88 square mile drainage area by methods that are believed to be reliably conservative. That is the peak flow and rate of rise from the 88 square miles represent the maximum that can be expected under the circumstances rather than some lesser amount. Similarly the Hydrograph for condition with the proposed plant in operation represents conditions in a critical week when the maximum use of the stored energy, [210] and therefore the maximum transfer of water between the pools occurs. The necessity for transferring maximum amounts of water between the pools will be lessened as the system to which the plant is connected becomes larger. The probability of the coincidence of conditions which could result in the extremes of peak flow and rate of change of stage represented in these hydrographs is therefore extremely remote, and they are presented merely to illustrate the effect of plant operation in an extreme case.

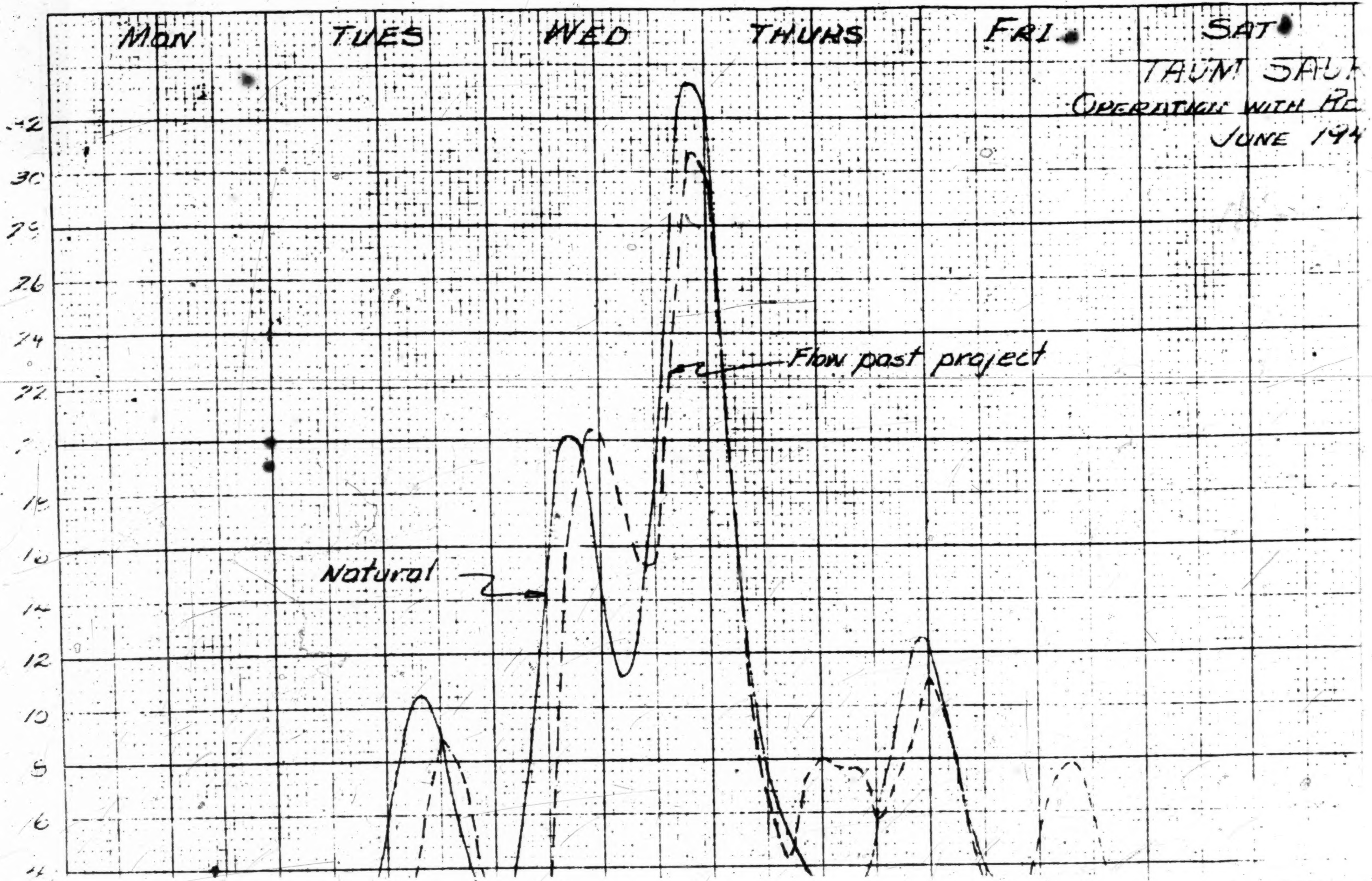
Curves of Generator and Motor output and input versus discharge under minimum, maximum and average head are also enclosed.

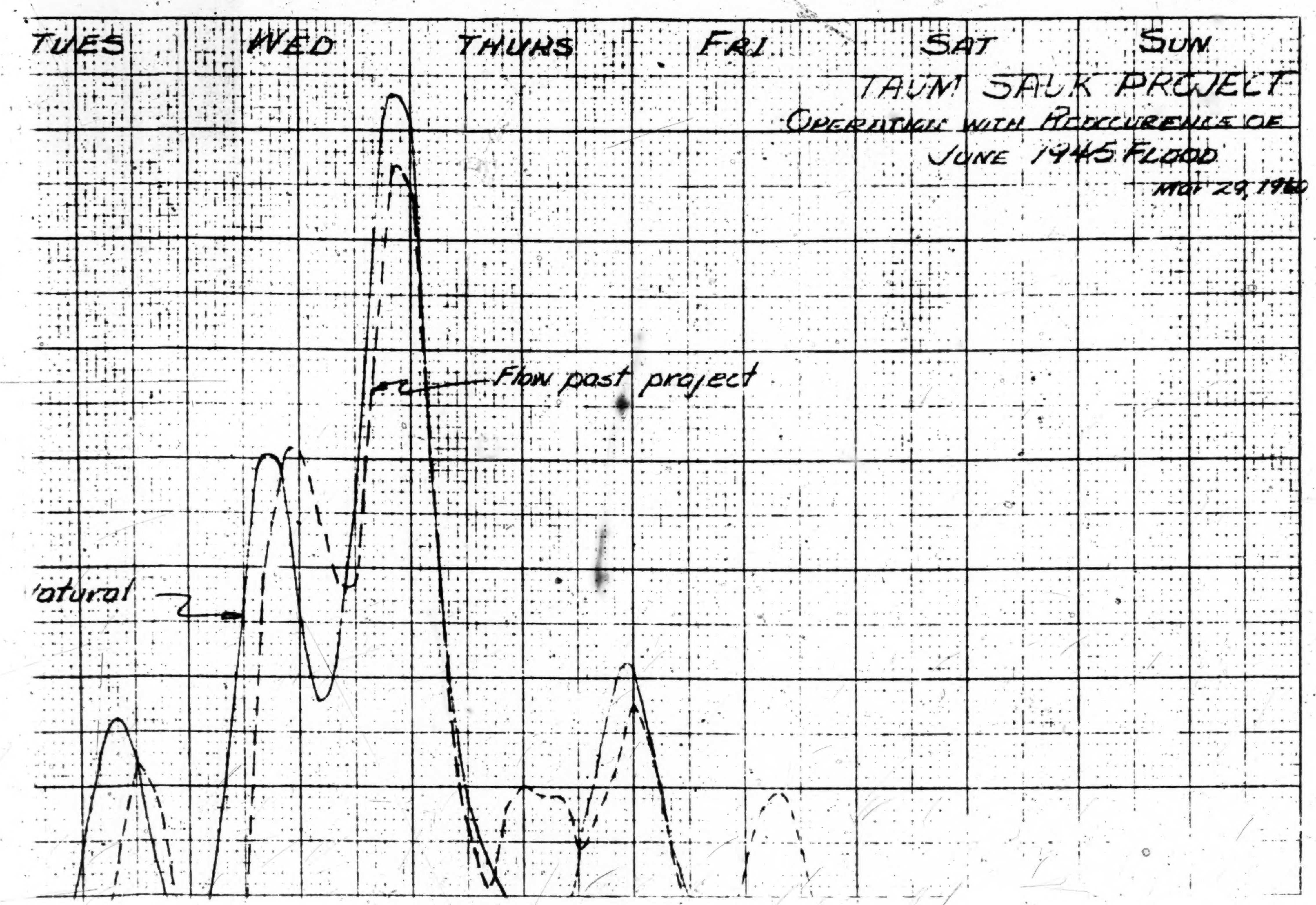
In view of the complexity of the flow problem Mr. G. J. Vencill, Chief Hydraulic Engineer of this company, and Mr. E. A. Rudulph, Manager of the Taum Sauk Project, will deliver this letter personally and be prepared to discuss the details of our analysis with members of the commission staff.

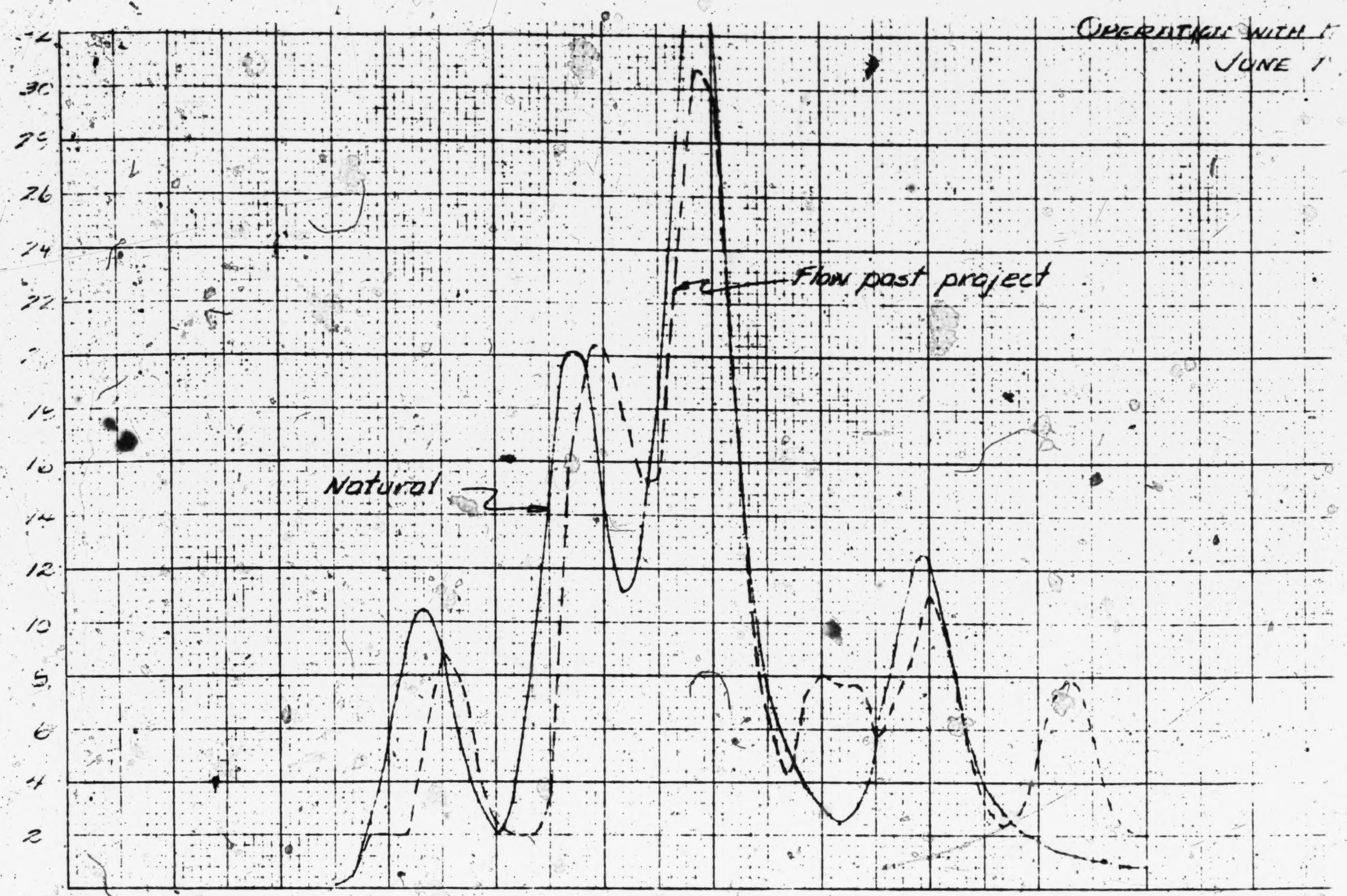
Yours very truly,

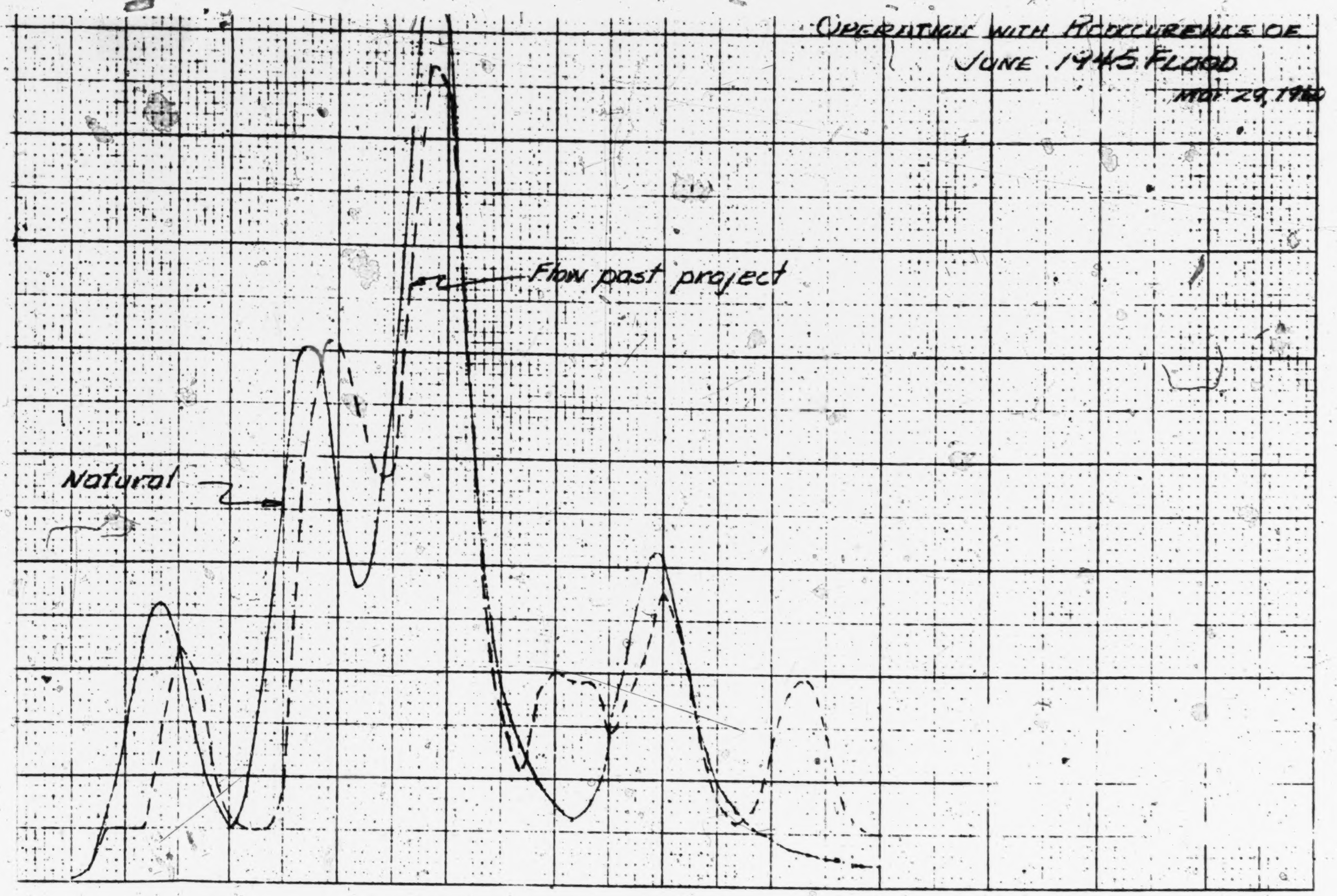
G. P. GAMBLE, *Vice President.*

EAR/jb
cc: (3)


MON
TUES
WED
THURS
FRI
SAT
TAUM SAU
OPERATION WITH RE
JUNE 194
32
30
28
26
24
22
18
16
14
12
10
8
6
Flow past project
Natural


TUES
WED
THURS
FRI
SAT
SUN
TAUM SAUK PROJECT
OPERATION WITH RECCURENCE OF
JUNE 1945 FLOOD
Mar 29, 1960
Flow past project
Natural

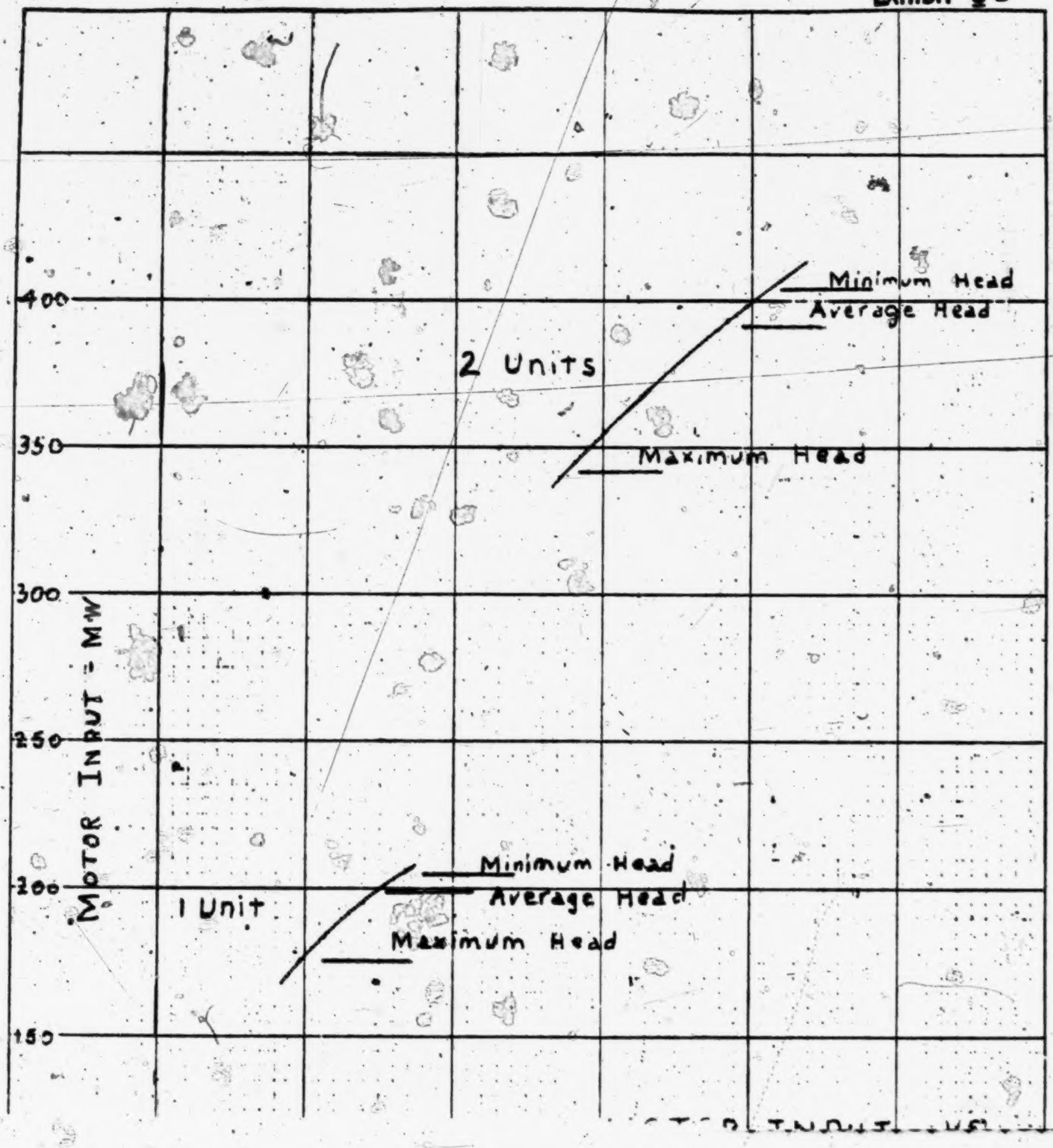

OPERATION WITH
JUNE 1
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
Flow past project
Natural

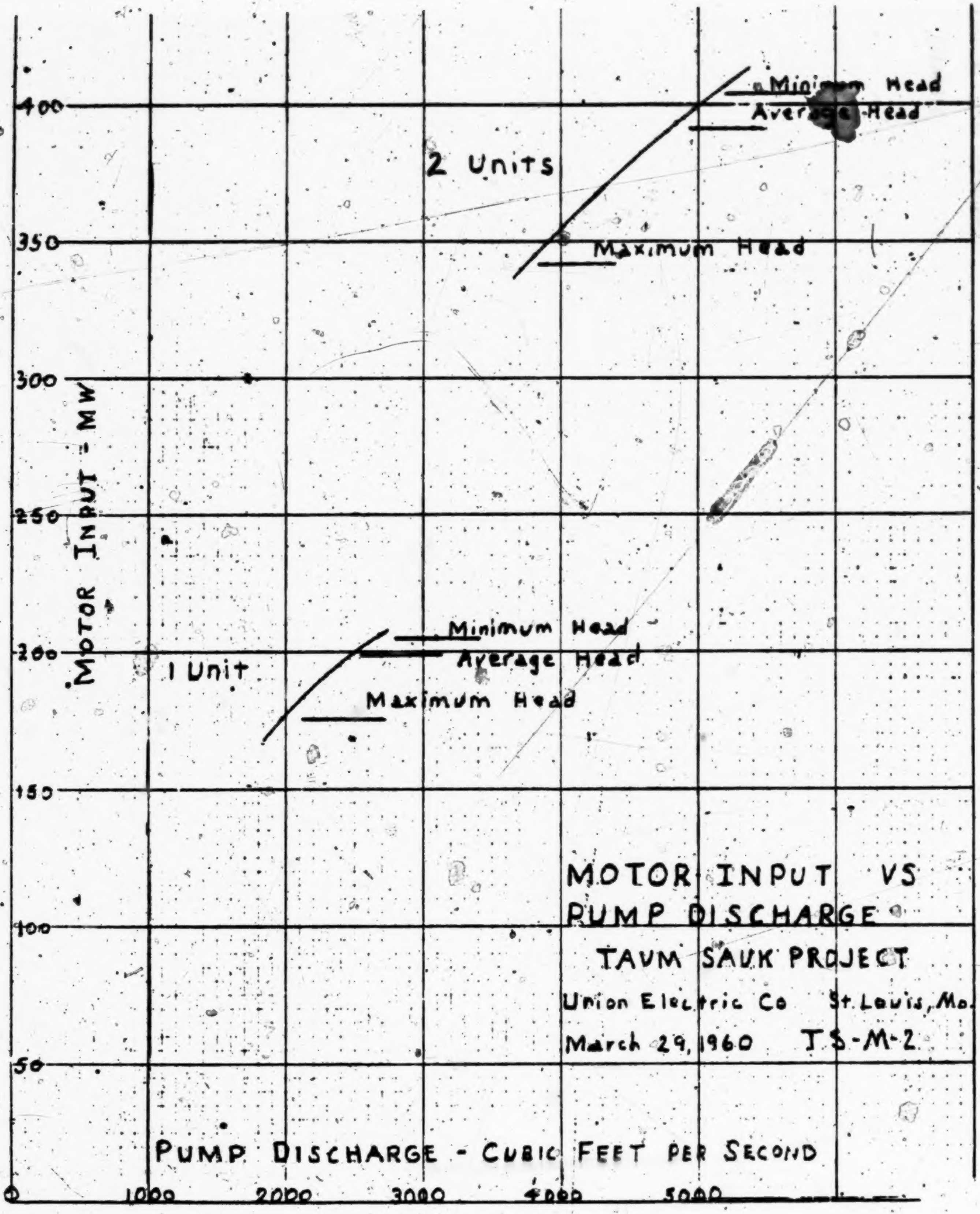

OPERATION WITH RECCURRENCE OF
JUNE 1945 FLOOD
MAY 29, 19[illegible]
Flow past project
Natural

# Before the Federal Power Commission

[211–212]

**EXHIBIT 6 B**


Minimum Head
Average Head
2 Units
Maximum Head
Minimum Head
Average Head
1 Unit
Maximum Head
MOTOR INPUT = MW
400
350
300
250
200
150



MOTOR INPUT VS
PUMP DISCHARGE

TAUM SAUK PROJECT

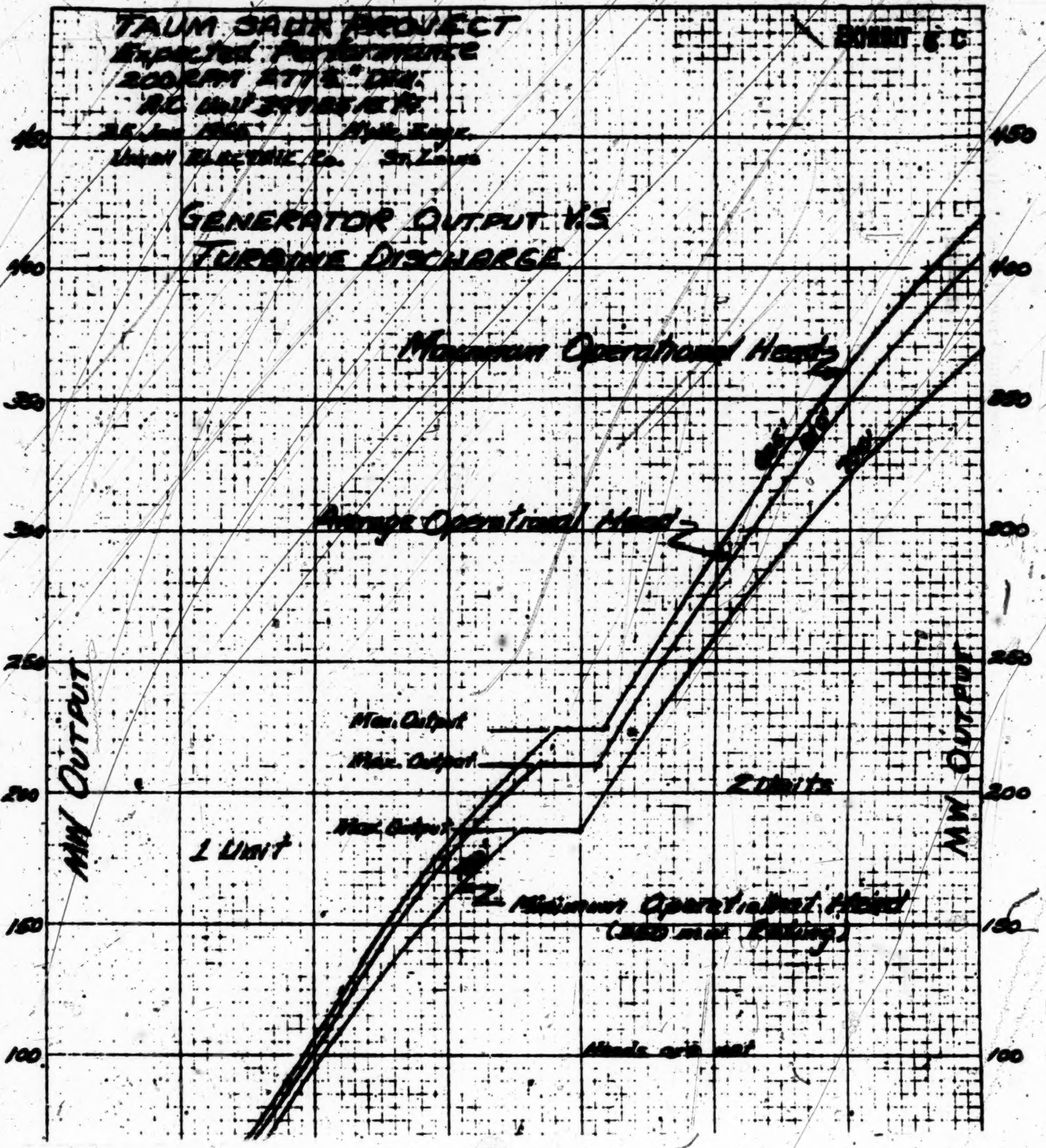
Union Electric Co St. Louis, Mo.

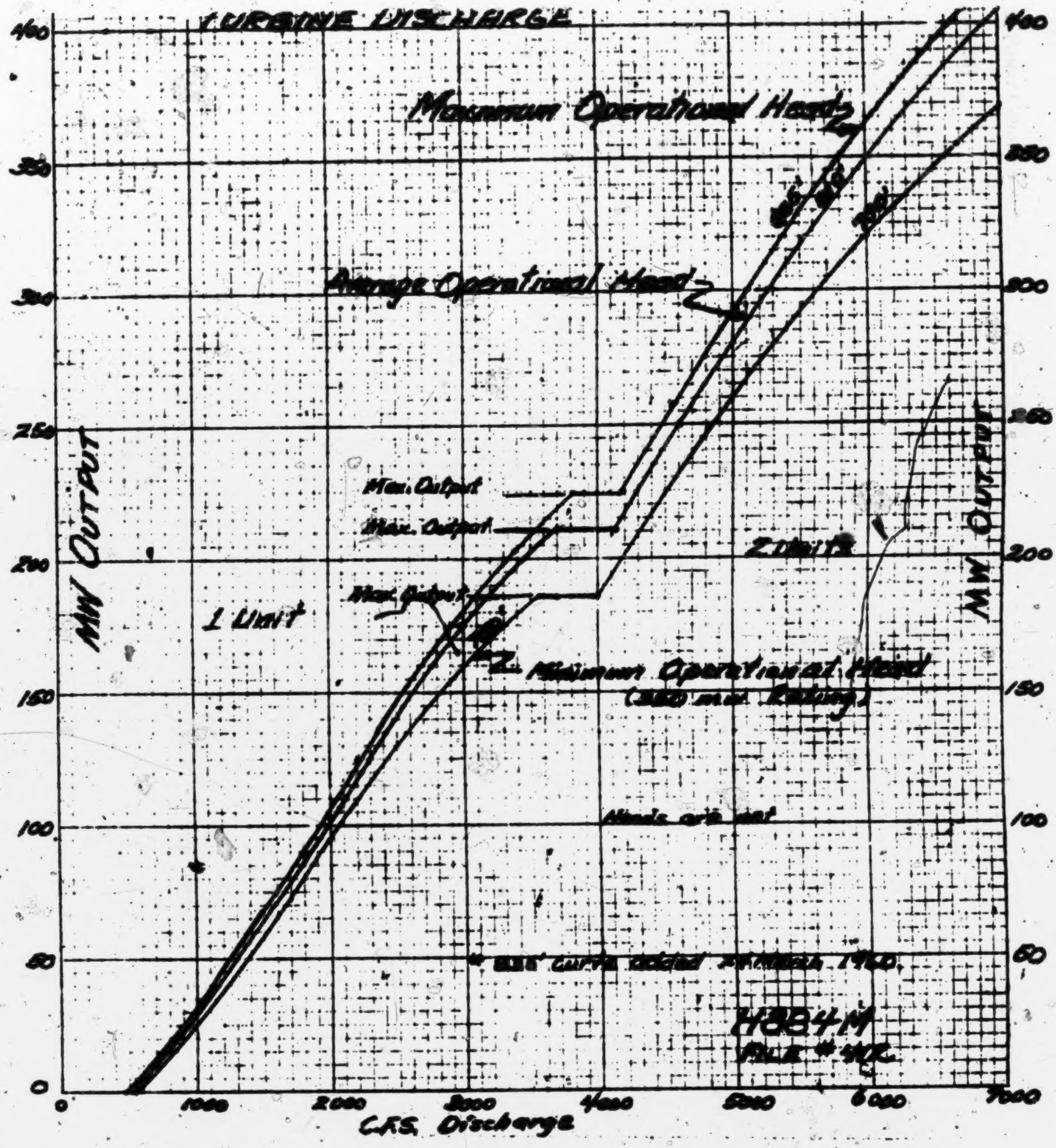
March 29, 1960 TS-M-2

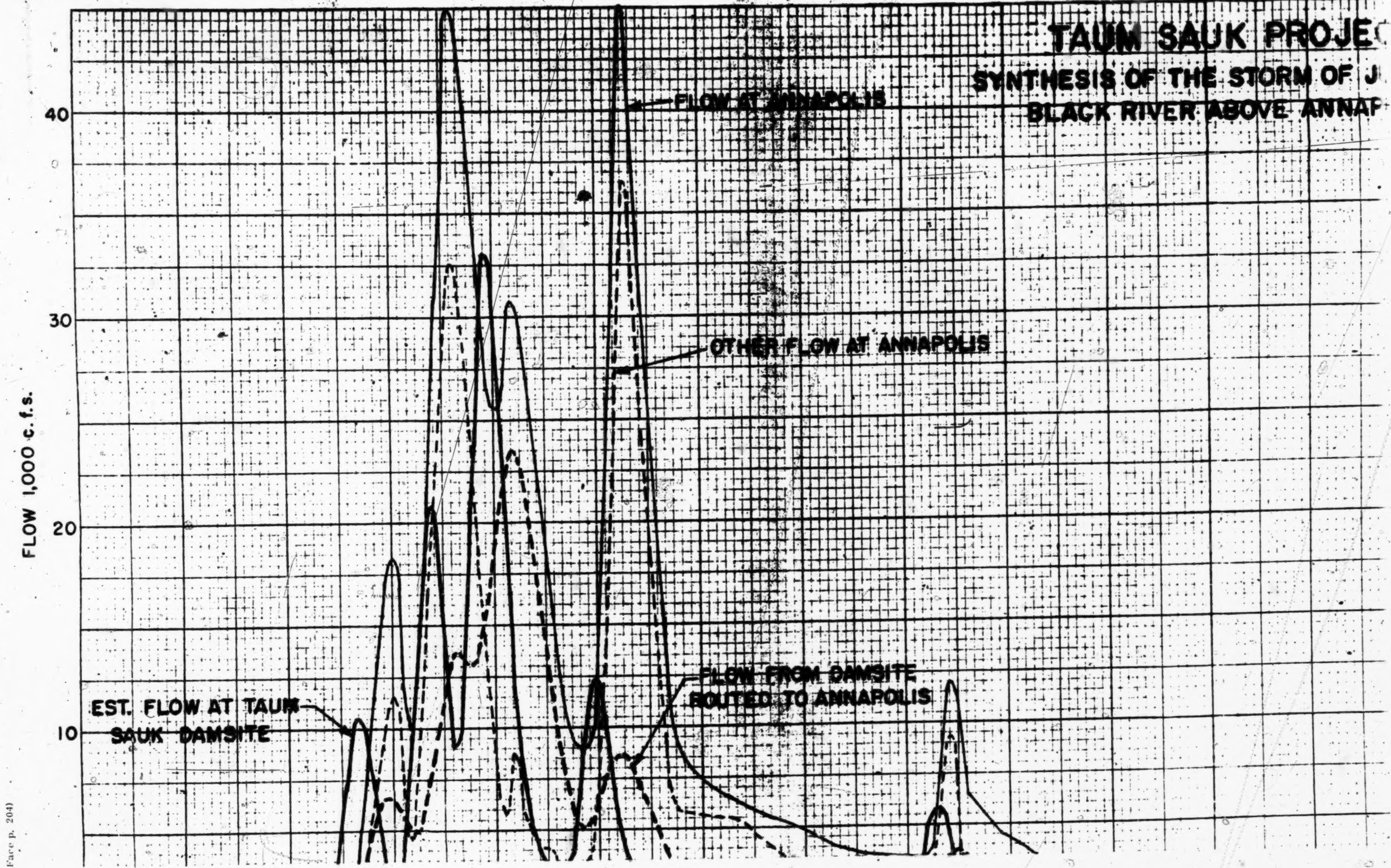
Before the Federal Power Commission

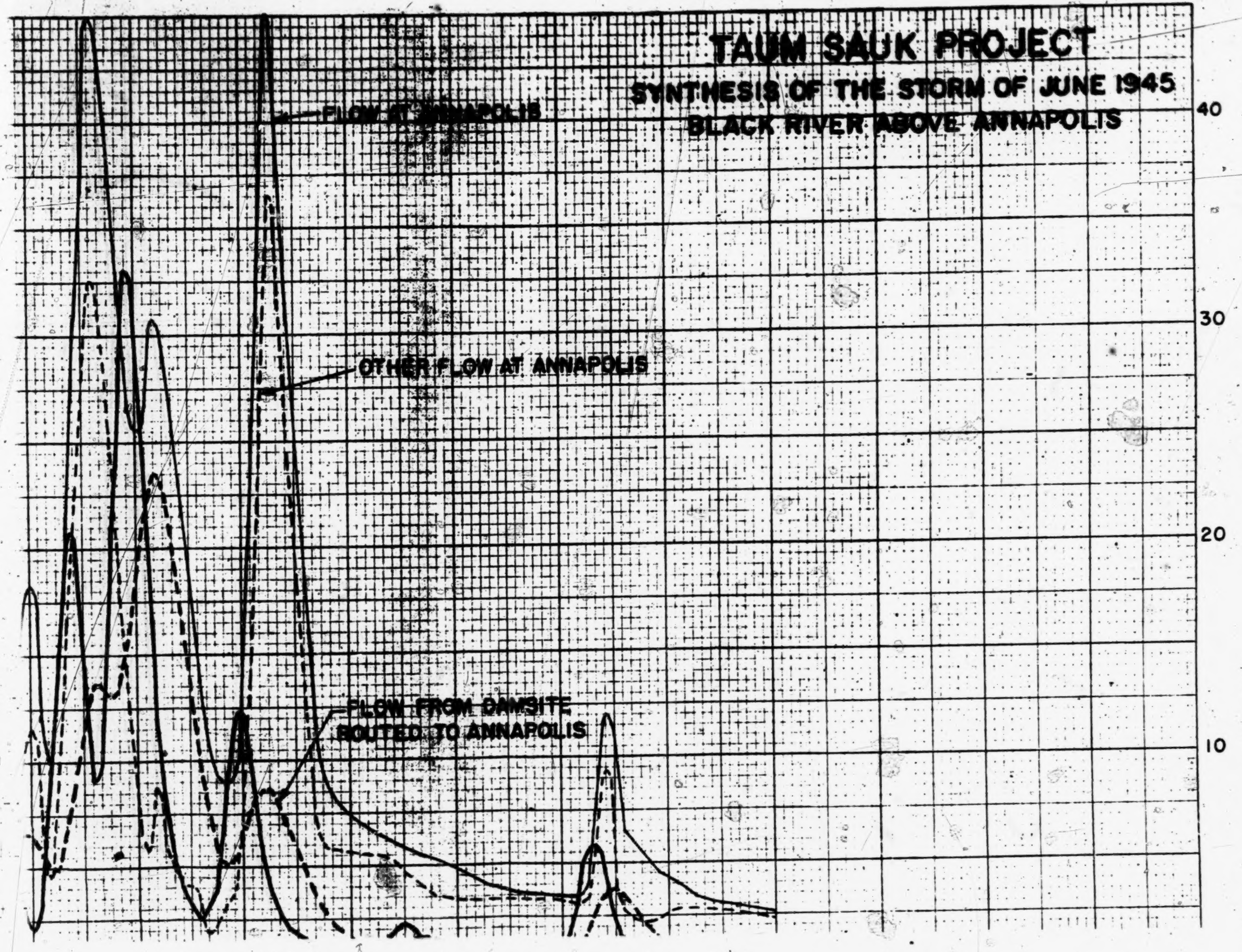
[213–214]

749-114 O - 64 (Face p. 202)

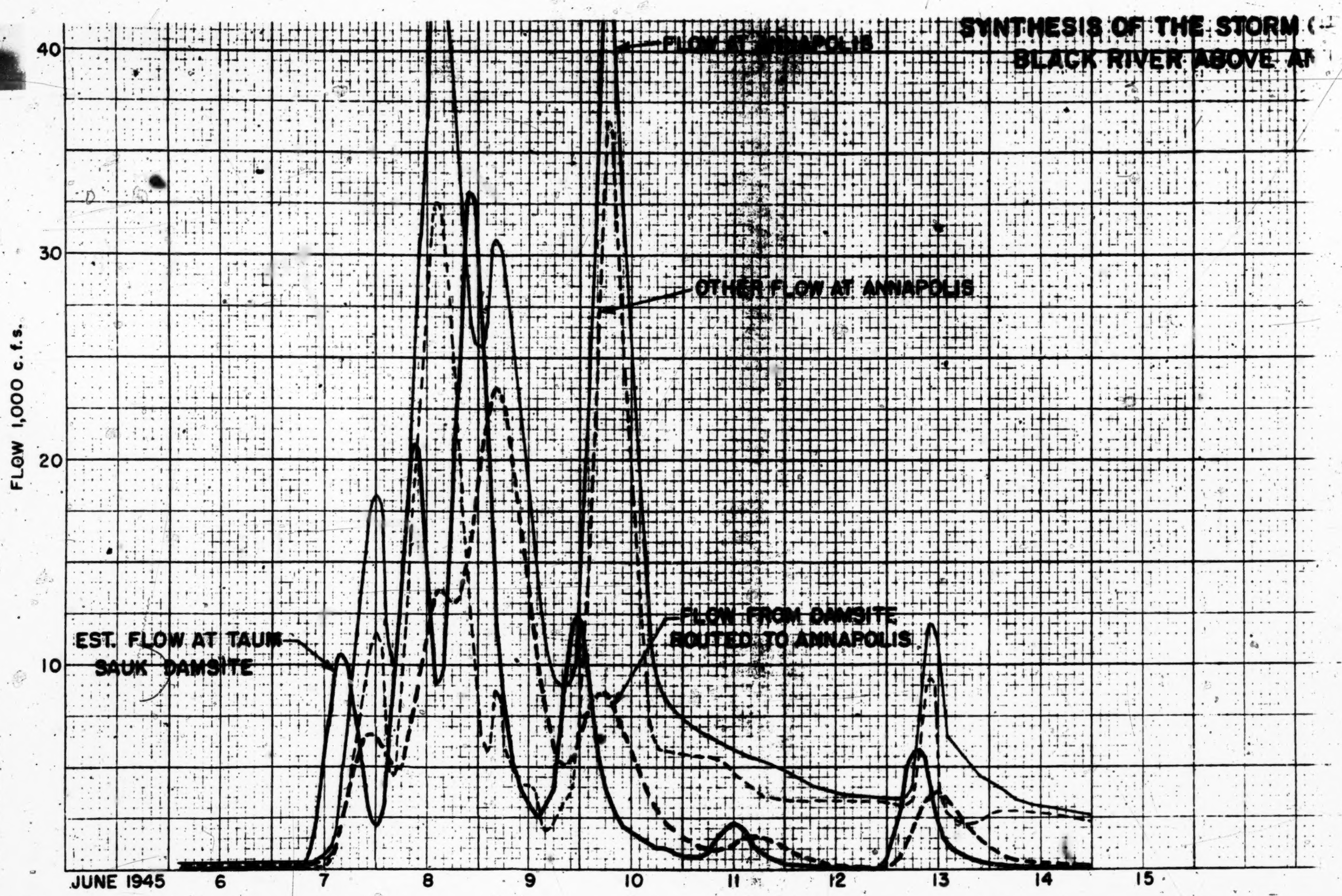


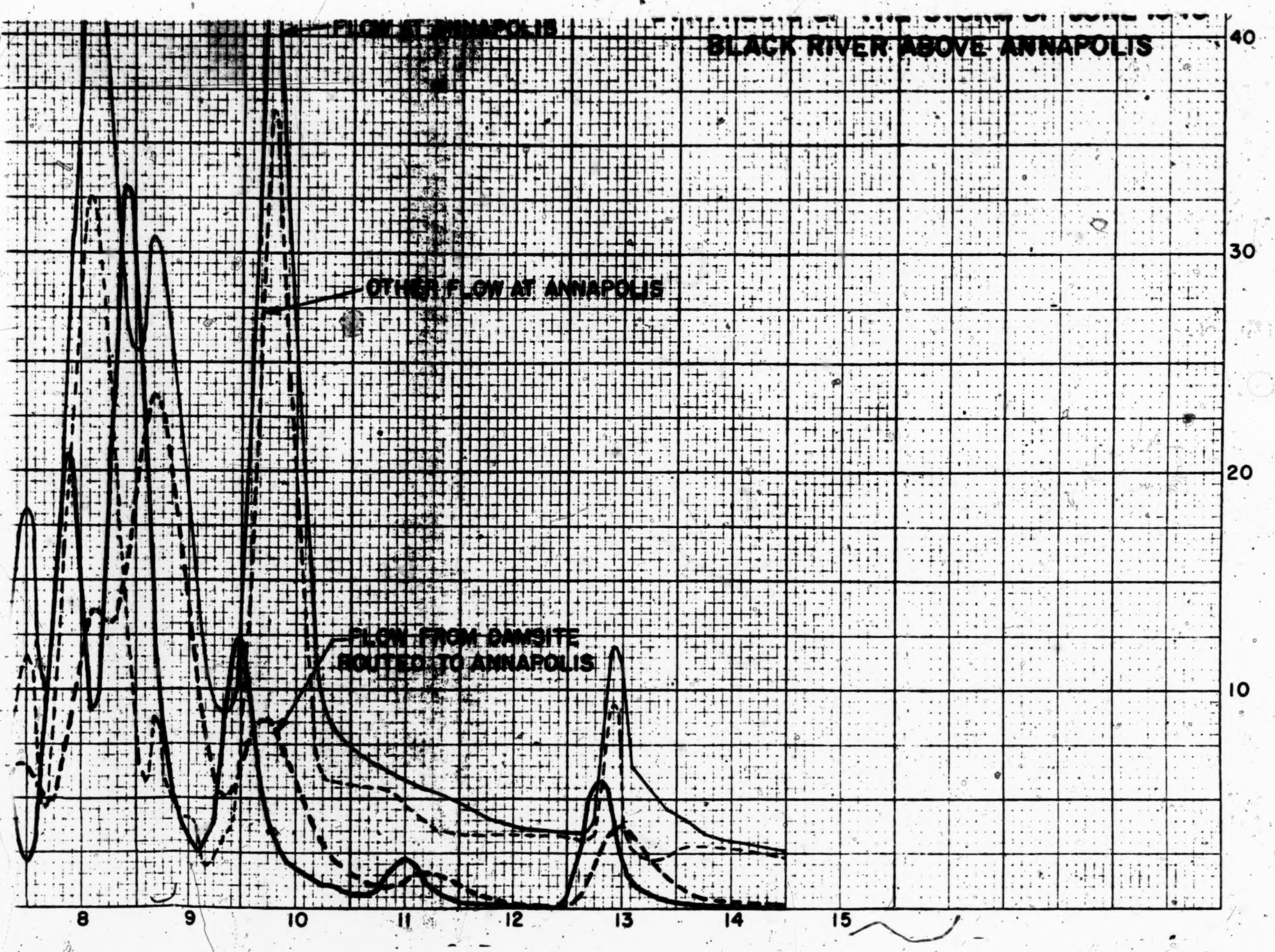

TURBINE DISCHARGE
Maximum Operational Heads
Average Operational Head
Max. Output
Max. Output
Max. Output
2 Units
1 Unit
Minimum Operational Head
(360 mw. Rating)
Heads are net
* 360' curve added 28 March 1960.
H884M
File #412
MW OUTPUT
MW OUTPUT
C.F.S. Discharge
0
50
100
150
200
250
300
350
400
0
1000
2000
3000
4000
5000
6000
7000


TAUM SAUK PROJE
SYNTHESIS OF THE STORM OF J
BLACK RIVER ABOVE ANNAP
FLOW 1,000 c.f.s.
40
30
20
10
FLOW AT ANNAPOLIS
OTHER FLOW AT ANNAPOLIS
FLOW FROM DAMSITE ROUTED TO ANNAPOLIS
EST. FLOW AT TAUM SAUK DAMSITE


TAUM SAUK PROJECT
SYNTHESIS OF THE STORM OF JUNE 1945
BLACK RIVER ABOVE ANNAPOLIS
40
30
20
10
FLOW AT ANNAPOLIS
OTHER FLOW AT ANNAPOLIS
FLOW FROM DAMSITE ROUTED TO ANNAPOLIS

Face p. 204)


SYNTHESIS OF THE STORM
BLACK RIVER ABOVE A
FLOW AT ANNAPOLIS
OTHER FLOW AT ANNAPOLIS
FLOW FROM DAMSITE ROUTED TO ANNAPOLIS
EST. FLOW AT TAUM SAUK DAMSITE
FLOW 1,000 c.f.s.
40
30
20
10
JUNE 1945
6
7
8
9
10
11
12
13
14
15


FLOW AT ANNAPOLIS
BLACK RIVER ABOVE ANNAPOLIS
OTHER FLOW AT ANNAPOLIS
FLOW FROM DAMSITE ROUTED TO ANNAPOLIS
40
30
20
10
8
9
10
11
12
13
14
15

# Before the Federal Power Commission

[217–218]

[218] Before the Federal Power Commission

*Exhibit 7 A*

(Copy)

UNION ELECTRIC COMPANY,
315 NORTH TWELFTH BOULEVARD,
SAINT LOUIS 1, MISSOURI, *April 12, 1960.*

FEDERAL POWER COMMISSION
*Washington 25, D. C.*

Attention: Mr. J. H. Gutride, Secretary

Re: Declaration of Intention by Union Electric Company,
Docket No. E-6927

GENTLEMEN: In discussing our letter of March 29 in regard to the above declaration of intention with Mr. Farley, Mr. Crum and Mr. Coomes of the Licensed Project Division some questions arose over the stream conditions which would exist below the lower dam if generation should be undertaken when the lower pool was full of water. It was agreed that Union Electric would investigate the particular conditions postulated and submit the results of the study to the Commission.

Enclosed is the report of a study of the stream flow conditions which a search of the available records indicated as most likely to develop the situation in question. It indicates only moderate changes in stage time relations as a result of operation of the project. This study is based on the project as envisioned in the declaration of intention.

Very truly yours,

GEO. P. GAMBLE, *Vice President Operation.*

EAR/jpb
Attachment
cc: (2)

[219] Before the Federal Power Commission

*Exhibit 7B*

April 12, 1960

## Effect of the Operation of Taum Sauk Pumped Storage Plant on High Flows of the East Fork of the Black River

In a discussion on March 30 between Mr. Farley, Mr. Crum and Mr. Coomes of the Federal Power Commission Licensed Projects Staff and Mr. Vencill and Mr. Rudolph of Union Electric Company in relation to the above project, Federal Power Commission Docket No. E–6927, a question arose as to the effect of the project on flow past the lower dam under a condition which might prevail if the lower pool were just full to the crest of the spillway at the start of the generating cycle. This would, of course, add the discharge of the water wheels to the inflow to the lower pool which could only be accommodated by raising the pool level until the discharge over the spillway added to the discharge of the sluiceway becomes equal to the combined discharge of the water wheels and the natural inflow from the river.

It was agreed that Union Electric Company should study this condition further and submit the results of the study.

As is usual in studies involving the natural flow of streams a number of complexities are involved not the least of which is the fact that the flow pattern of a stream is never repeated exactly and a large number of factors in regard to probability and frequency of occurrence must be assumed. It is the purpose of this investigation to set forth cases which in the light of twenty years of stream flow record are probable but which may represent extremes in effect on the stream flow below the project.

It is obvious that for the conditions outlined the attained average inflow to the lower pool must be at least equal to the discharge capacity of the permanent sluice through the lower dam plus a sufficient amount to fill the working 4,000-acre feet of the lower pool in the period between the end of one generating cycle and the beginning of the next.

In order to avoid the pitfall of a hypothetical case however, which could present a wholly unrealistic condition an examination of the stream flow record at Annapolis was do [220] made to locate a possible period of moderately high flow which might result in the condition specified. Two such periods, one in January 1949 and one in May 1950, were found which approach quite closely the prescribed conditions.

As in the case of the June 1945 flood, which was submitted to the Federal Power Commission with a letter from Union Electric Company dated March 29, 1960, each flood period, although based initially on the flow at Annapolis, was traced back from the 484-mile drainage area at Annapolis to the 88 square miles for the East Fork by reference to hourly rainfall records at nearby stations, rainfall runoff ratios and other means applicable to the drainage areas in question. Hydrographs thus developed were then checked against the total measured rainfall during the period as reported from stations near the area. In general, as in the June 1945 case, this check when applied to the hydrographs submitted here indicated that they are reasonable and acceptable.

For convenience in this investigation the hydrographs of flow were converted to river stage time curves related to the East Fork of the Black River at the lower dam site and are shown in Figures 1 and 2. The same stage time curve for the June 1945 case is shown in Figure 3. The corresponding basic hydrographs of flow versus time are shown in Figures 4, 5 and 6.

These hydrographs show rather conclusively the flashy nature of the Black River and particularly the East Fork in its steep upper reaches. This results in peaks of flow which are narrow in proportion to their height and a peak therefore containing a sufficient volume of water to meet the conditions of the problem as set forth above, was found to be considerably higher than the average sustained flow necessary to fill the lower reservoir and hold it full into the generating cycle. It was found necessary to study flood flows with peaks of from 15,000 to 17,000 cubic feet per second if the prescribed conditions were to be met. Even then the conditions could usually only be met fully when considering a period with peaks on two or more successive days such as the high flow period of January 1949.

[221] Superimposed on these hydrographs and stage time curves are corresponding graphs of the calculated outflow of the lower reservoir and the corresponding stages assuming the sluice gates to be open to their full capacity and a normal operating period for the power plant itself pumping during the off peak hours and generating during the peak hours. The periods of pumping and generation are shown. The outflow stage time curves shown in Figures 1, 2 and 3 assume no manipulation of the reservoir operation to modify flow conditions and assumes the daily cycle of pumping and generating will proceed as required to meet demands with no attempt to anticipate high or low flow periods or curtail operation of the plant to accommodate the rising flow in the river.

Should there have been no operation of the turbines or pumps during the period being studied, the corresponding inflow and outflow stage time curves are shown in figures 7 and 8. In these cases, of course, the lower pool acts as a simple retarding basin in reducing the outflow crest and spreading the base of the peaks.

Between these two extremes of full operation and no operation of the power plant there are a number of manipulations possible which could assist in holding the flood crests to a minimum reducing their height. These measures would depend on conditions existent at the time and are not pertinent to this investigation.

The stage time curves are related to the hydrographs through rating curves which are shown in Figure 9. Although sufficient high flows have not been experienced since Union Electric Company started the study of this project to establish an absolutely firm rating curve for any point in the East Fork it is believed that the curves presented based on a study of high water marks, slope profiles applied to normally acceptable open channel flow formulas and observations by old residents of the valley are fairly good representations of the flow conditions. In any event they will be fairly representative of the changes in stage which can result from the changes in flow in the range being studied.

These stage changes are calculated for conditions immediately below the dam. They can occur only when the flow would apparently be sufficient to force the stream out [222] of its banks onto the wide spreading bottoms lying below the dam site. A flow of 5,000 cubic feet per second results in a stage at Elevation 710. The area of these bottoms at that elevation between the dam and the highway 21 bridge at Lesterville is about 650 acres. The valley storage afforded by this area for any rise in stage in the range anticipated in this study will have a pronounced effect in flattening the peak.

From the stage time curves Figures 1, 2 and 3 it can be seen that the maximum increase in stage is in the order of one foot taking place in a period of about 6 hours and that this occurs in a period of moderately high flow occurring less than 1% of the time, and that this is an effect which diminishes as higher flood flows are encountered and can occur only with the timely coincidence of generation and high flows.

The surplus water retained in the system during the high flow period would of course be released after the inflow had dropped below the capacity of the sluiceway creating, as in the case of any retarding basin, a delayed period at slightly greater than normal flow at a comparatively uniform rate below the dam.

When it is considered further that the economics are adverse to generation with a full lower pool but favorable to pumping under the same condition and that high flow is most apt to occur when other system hydro generation is readily available it is reasonable to assume that generation into a full lower pool would be resorted to only in the event of extreme peak demands coincident with high flows the frequency of which occurrence is quite remote.

Consideration was given in our investigation to the possibility of a larger controllable sluiceway up to 6,000 cubic feet per second capacity. Such a sluiceway results in only a very small reduction in the height of peak stages below the dam in any case and presents the risk of an abrupt release of a large amount of water through incorrect operation which would cause a rapid rise in stage down stream—a risk which we do not believe justified by the slight stage reduction which would be accomplished by the large sluiceway.

EAR/jpb

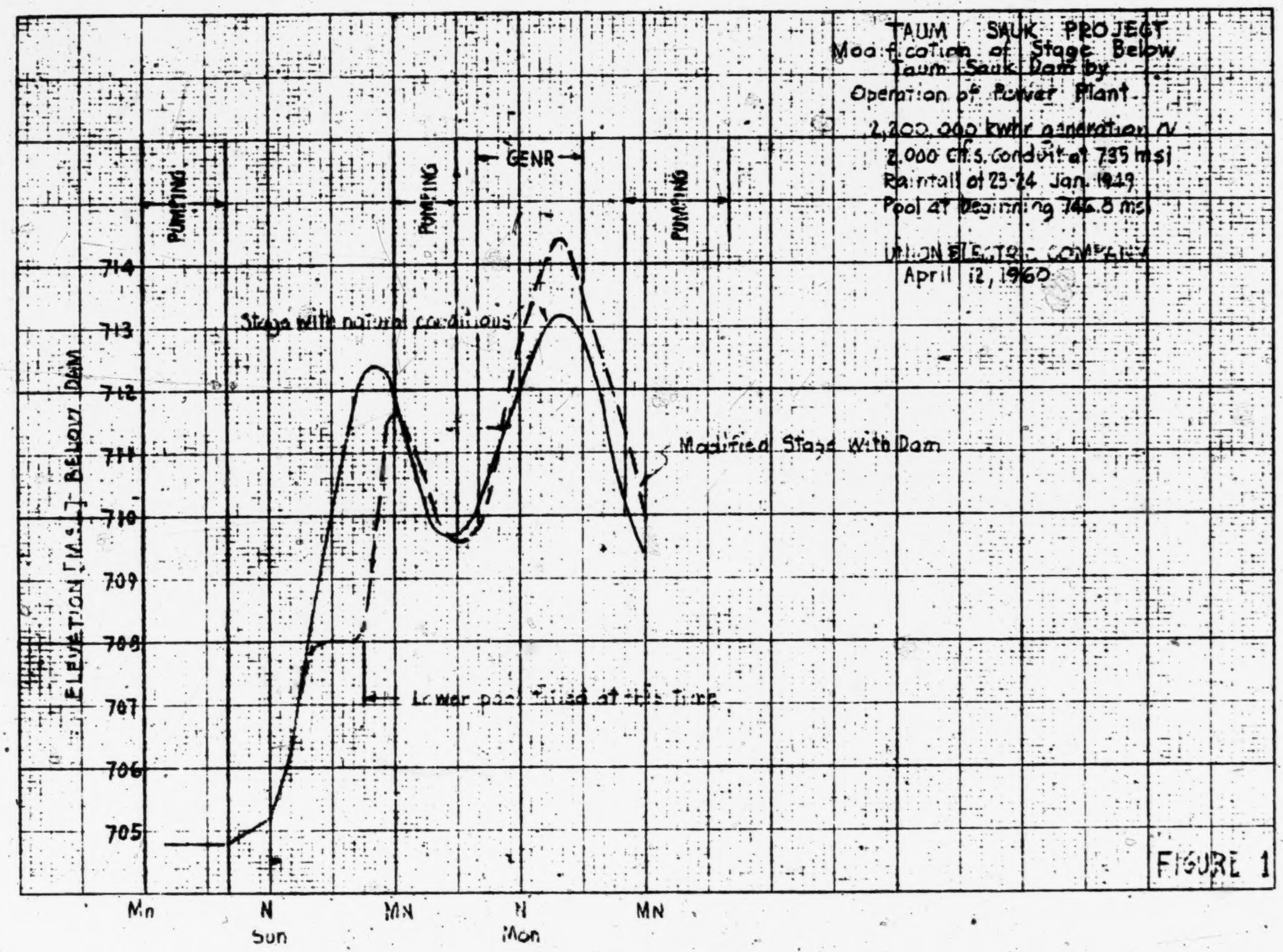

TAUM SAUK PROJECT
Modification of Stage Below Taum Sauk Dam by Operation of Power Plant
2,200,000 kwhr generation (V
2,000 cfs. conduit at 735 msl
Rainfall of 23-24 Jan. 1949
Pool at beginning 746.8 msl
UNION ELECTRIC COMPANY
April 12, 1960
PUMPING
PUMPING
GENR
PUMPING
Stage with natural conditions
Modified Stage With Dam
Lower pool filled at this time
ELEVATION [M.S.L.] BELOW DAM
714
713
712
711
710
709
708
707
706
705
Mn
N
Sun
MN
N
Mon
MN

FIGURE 1

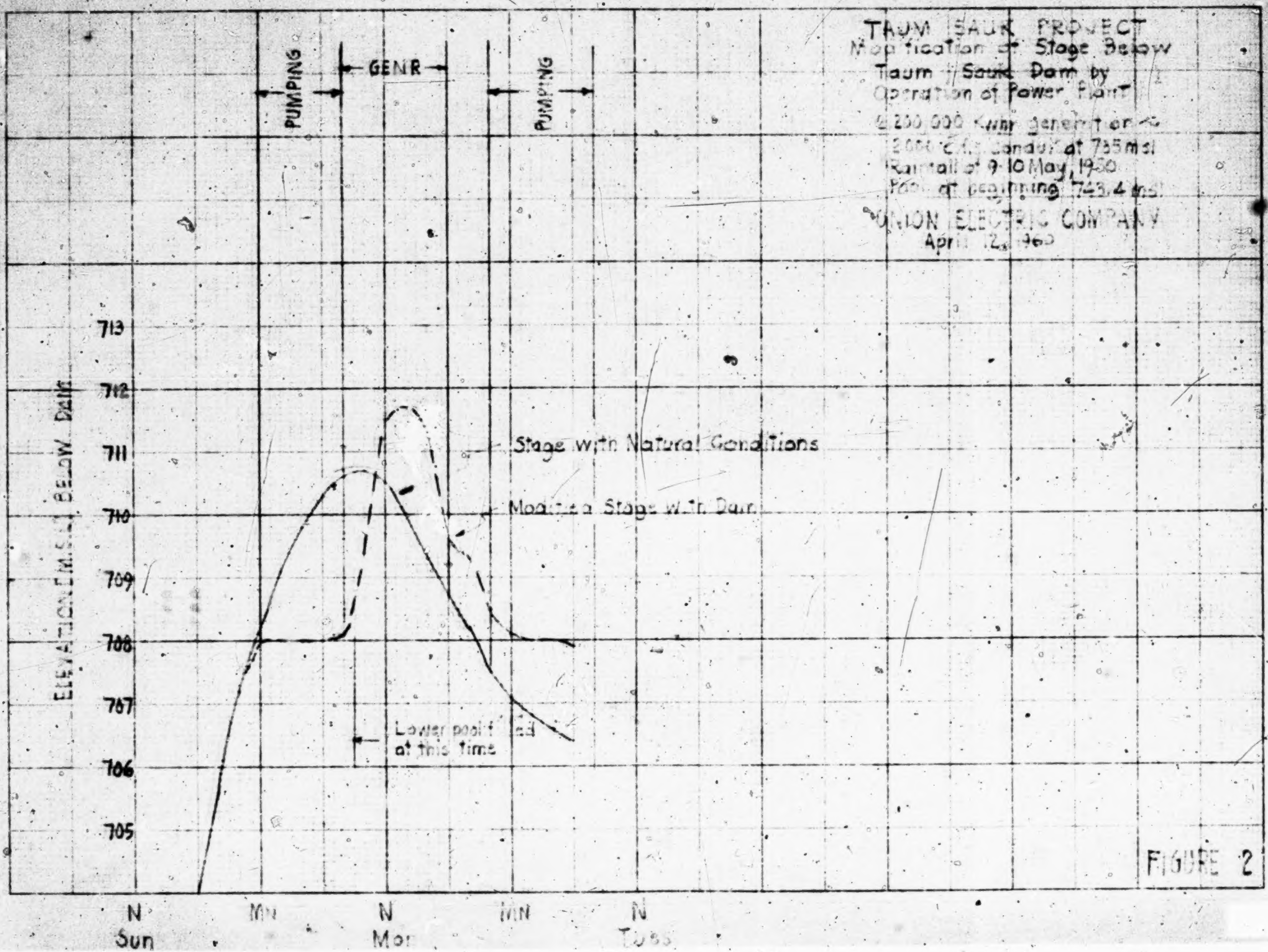
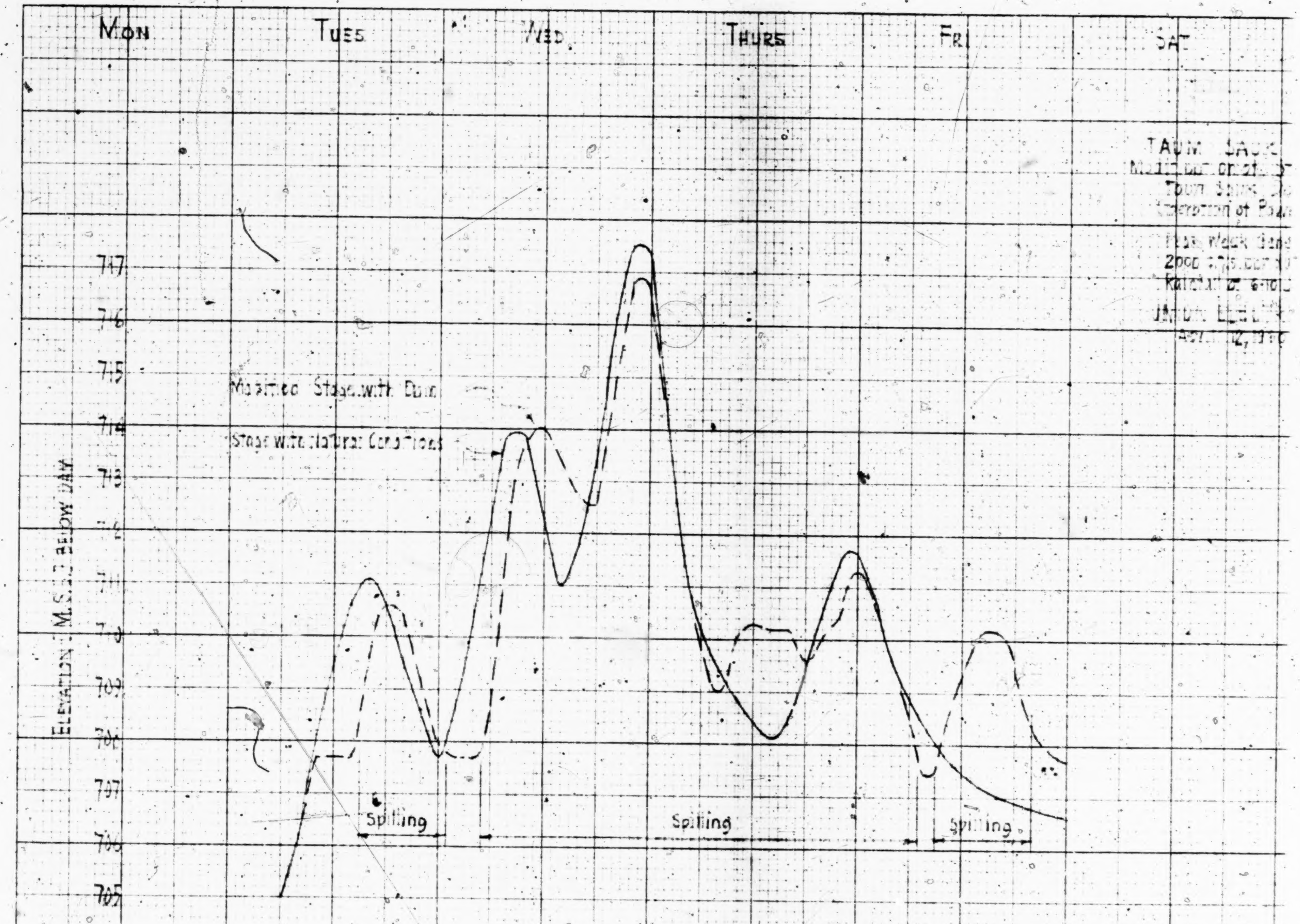
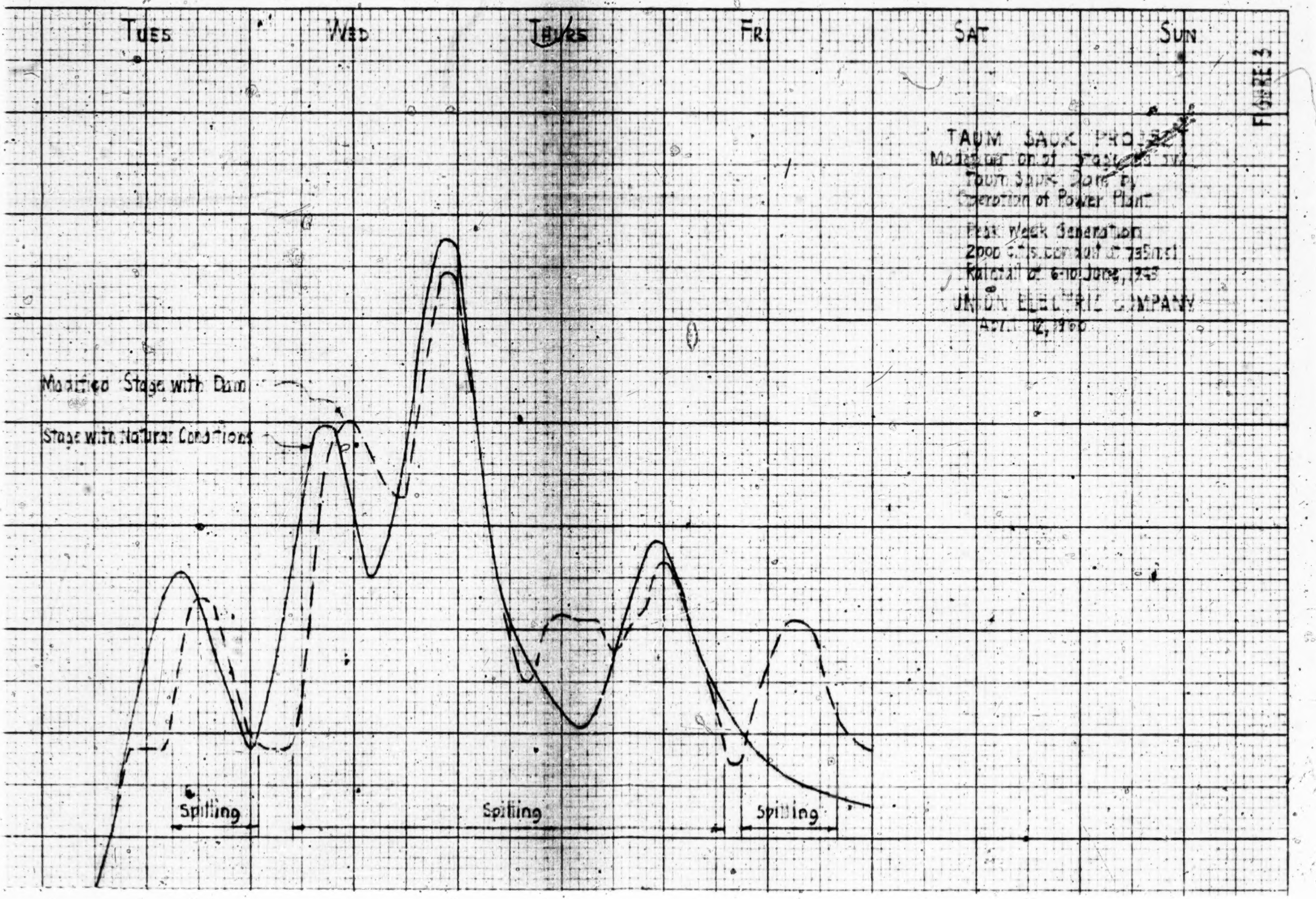


FIGURE 2

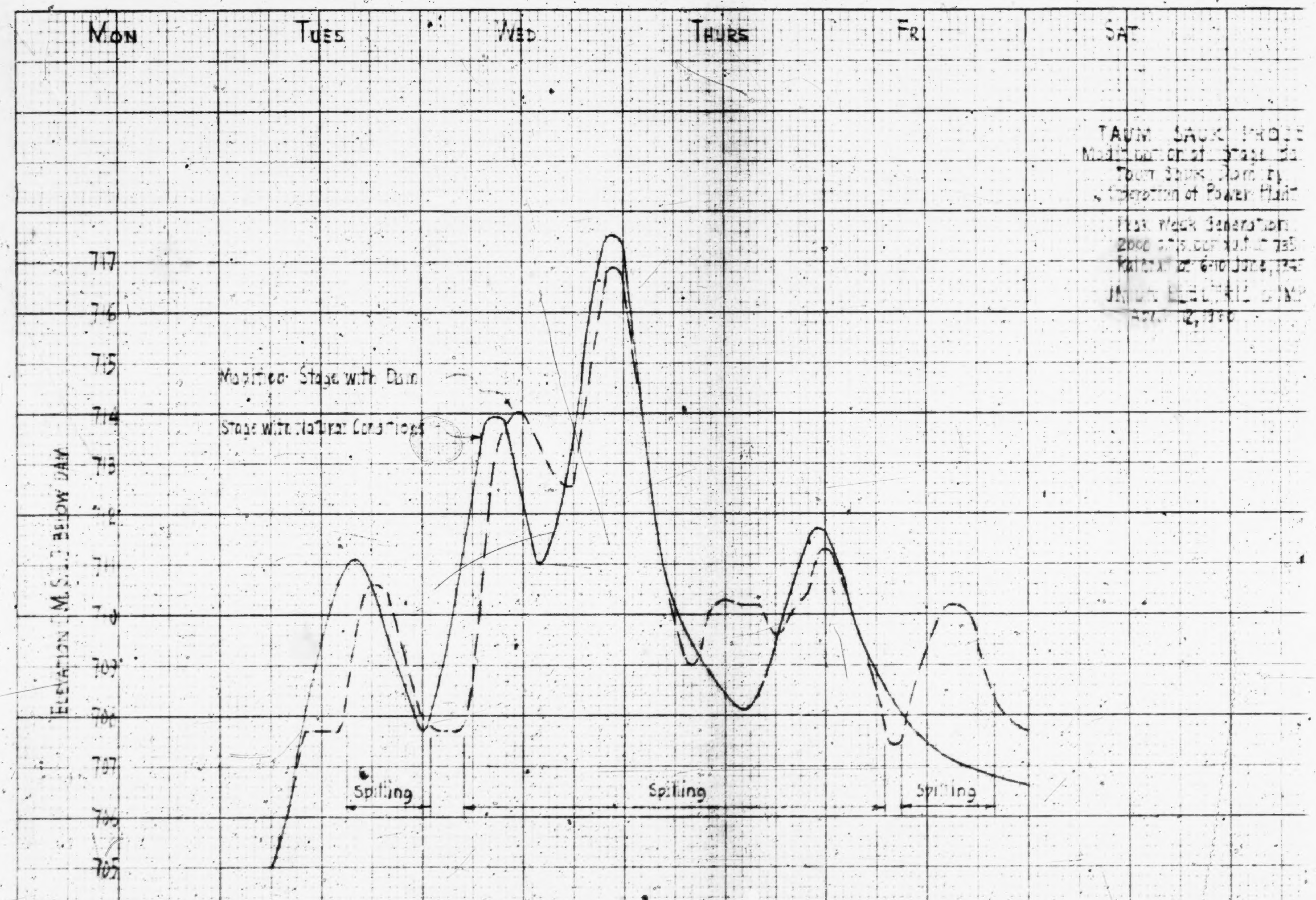
749-114 O- 64 (Face p. 210) No. 2



Mon
Tues
Wed
Thurs
Fri
Sat
TAUM SAUK
Modification of St
Taum Sauk D
Operation of Pow
Peak Week Gene
2000 c.f.s. con. out at
Rainfall of 6-10
UNION ELECT
April 12, 1960
Modified Stage with Dam
Stage with Natural Conditions
ELEVATION: M.S.L. BELOW DAM
717
716
715
714
713
712
711
710
709
708
707
706
705
Spilling
Spilling
Spilling



Tues
Wed
Thurs
Fri
Sat
Sun
FIGURE 3
TAUM SAUK PROJECT
Modification of Stages by
Taum Sauk Dam by
Operation of Power Plant
Peak Week Generation
2000 c.f.s. con. out at 735 m.s.l.
Rainfall of 6-10 June, 1945
UNION ELECTRIC COMPANY
April 12, 1960
Modified Stage with Dam
Stage with Natural Conditions
Spilling
Spilling
Spilling



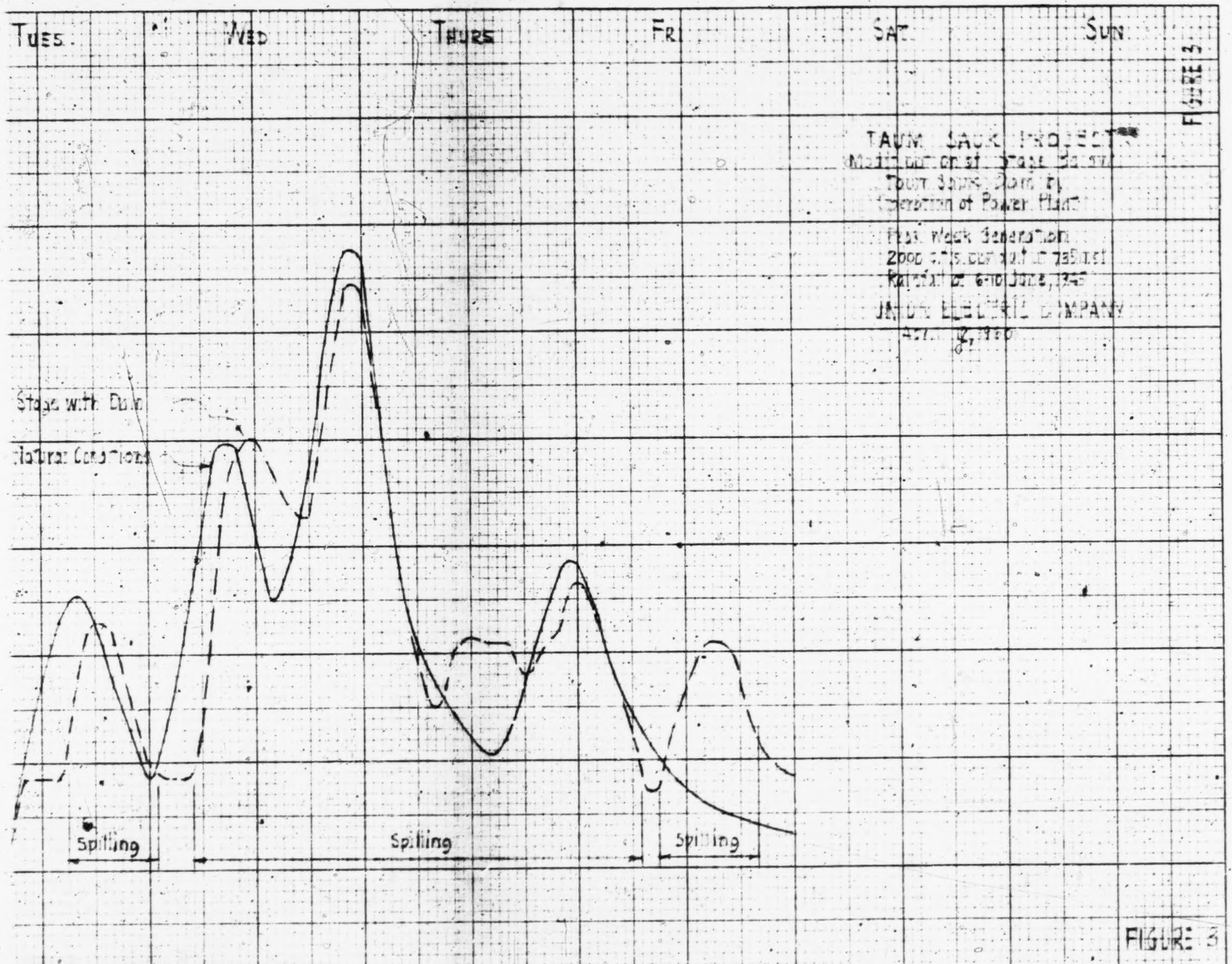


FIGURE 3

FIGURE 3

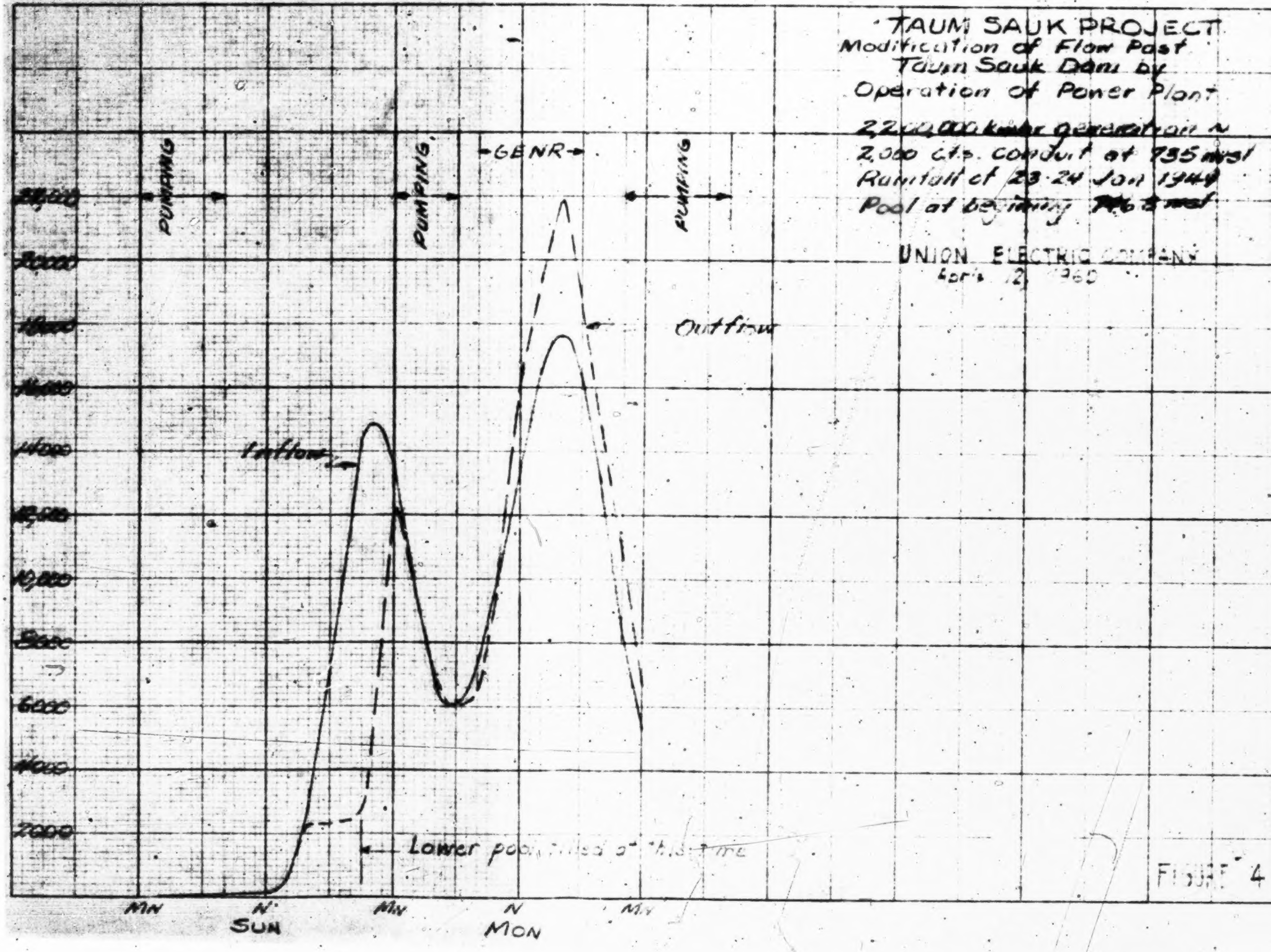
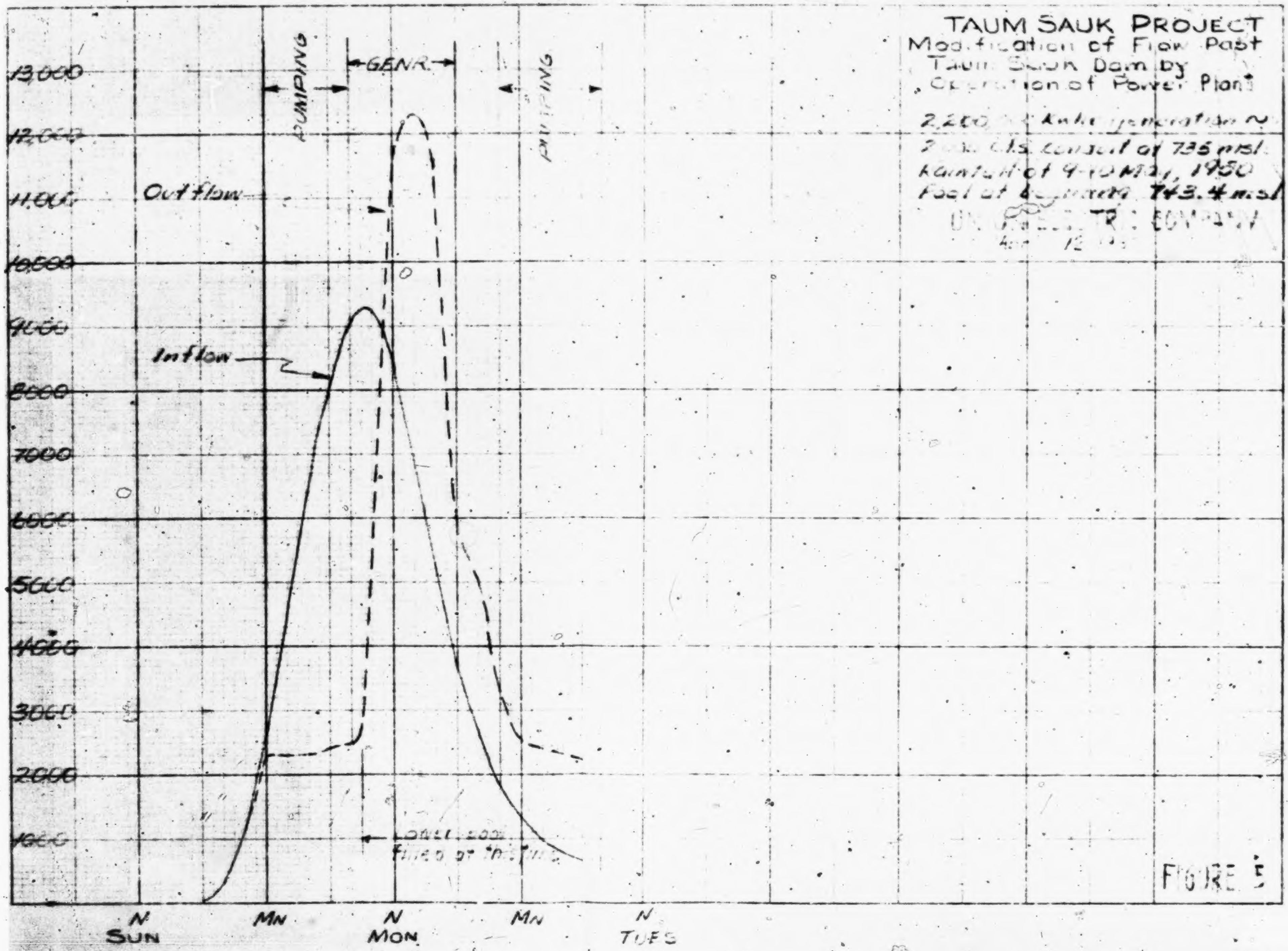

TAUM SAUK PROJECT
Modification of Flow Past
Taum Sauk Dam by
Operation of Power Plant
2,200,000 kwhr generation &
2,000 c.f.s. conduit at 735 msl
Rainfall of 23-24 Jan 1949
Pool at beginning [illegible] msl
UNION ELECTRIC COMPANY
April 12, 1960
PUMPING
PUMPING
GENR
PUMPING
Outflow
Inflow
Lower pool filled at this time
22,000
20,000
18000
16000
14000
12,000
10,000
8000
6000
4000
2000
MN
N
SUN
MN
N
MON
MN

FIGURE 4

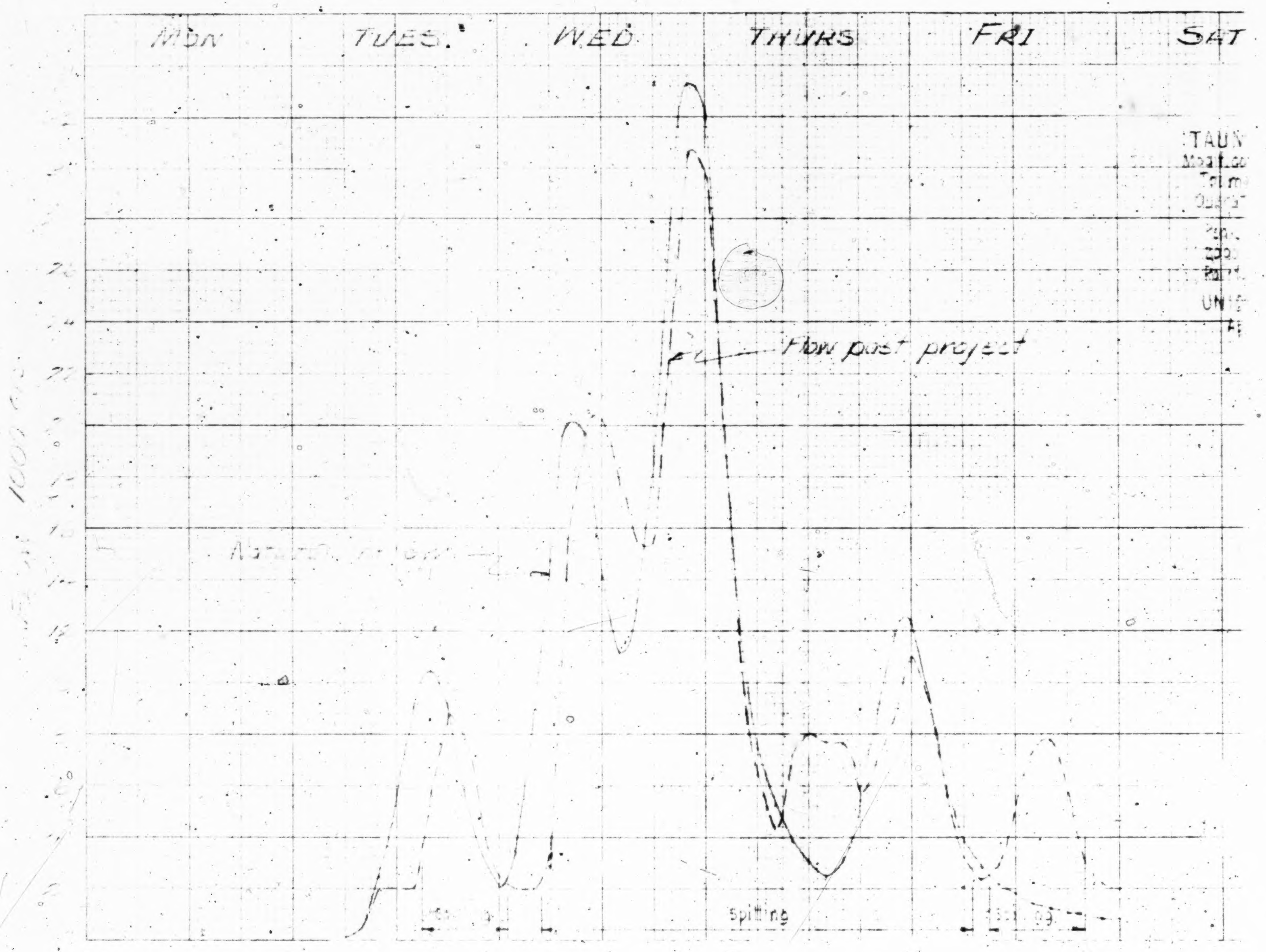


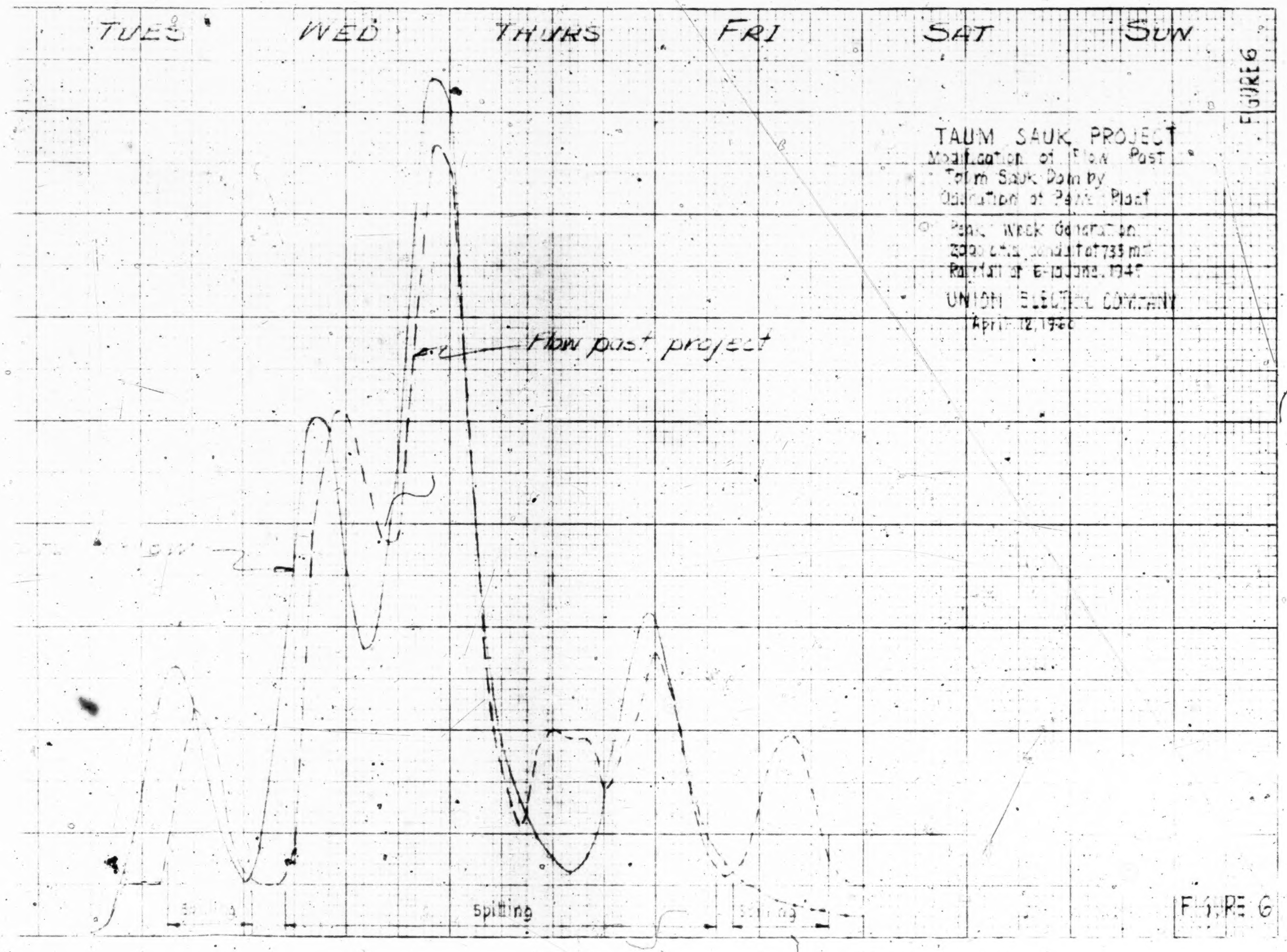
TAUM SAUK PROJECT
Modification of Flow Past
Taum Sauk Dam by
Operation of Power Plant

2,200 [illegible] Kwhr generation ~
2 [illegible] c.f.s. constant at 735 msl
Rainfall of 9-10 May, 1950
Pool at beginning 743.4 msl

UNION ELECTRIC COMPANY
Apr 12 [illegible]

FIGURE 5



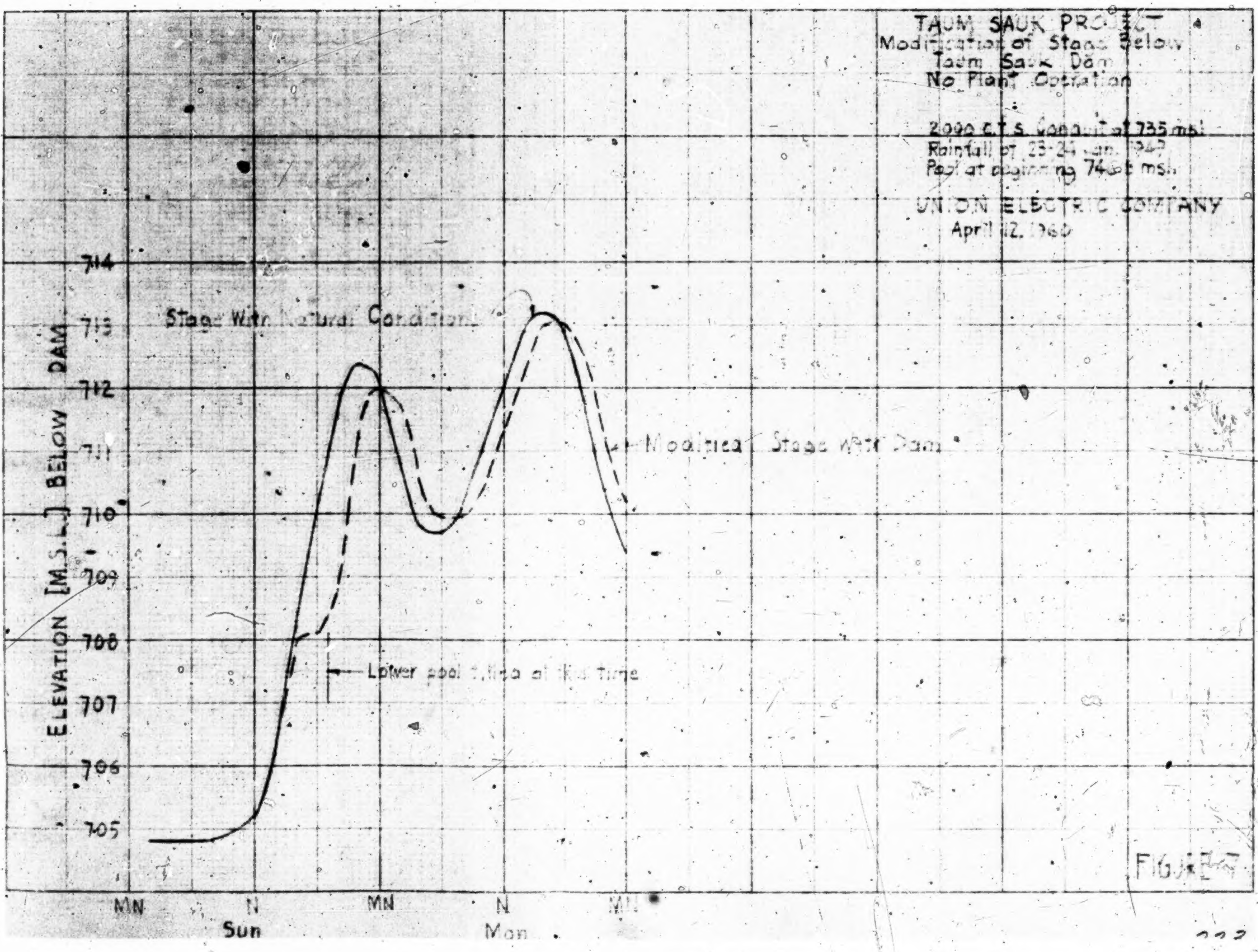


TAUM SAUK PROJECT
Modification of Flow Past
Taum Sauk Dam by
Operation of Power Plant

Peak Week Generation
2000 cfs Conduit at 735 msl
Rainfall of 6-10 June 1945

UNION ELECTRIC COMPANY
April 12, 1960

FIGURE 6

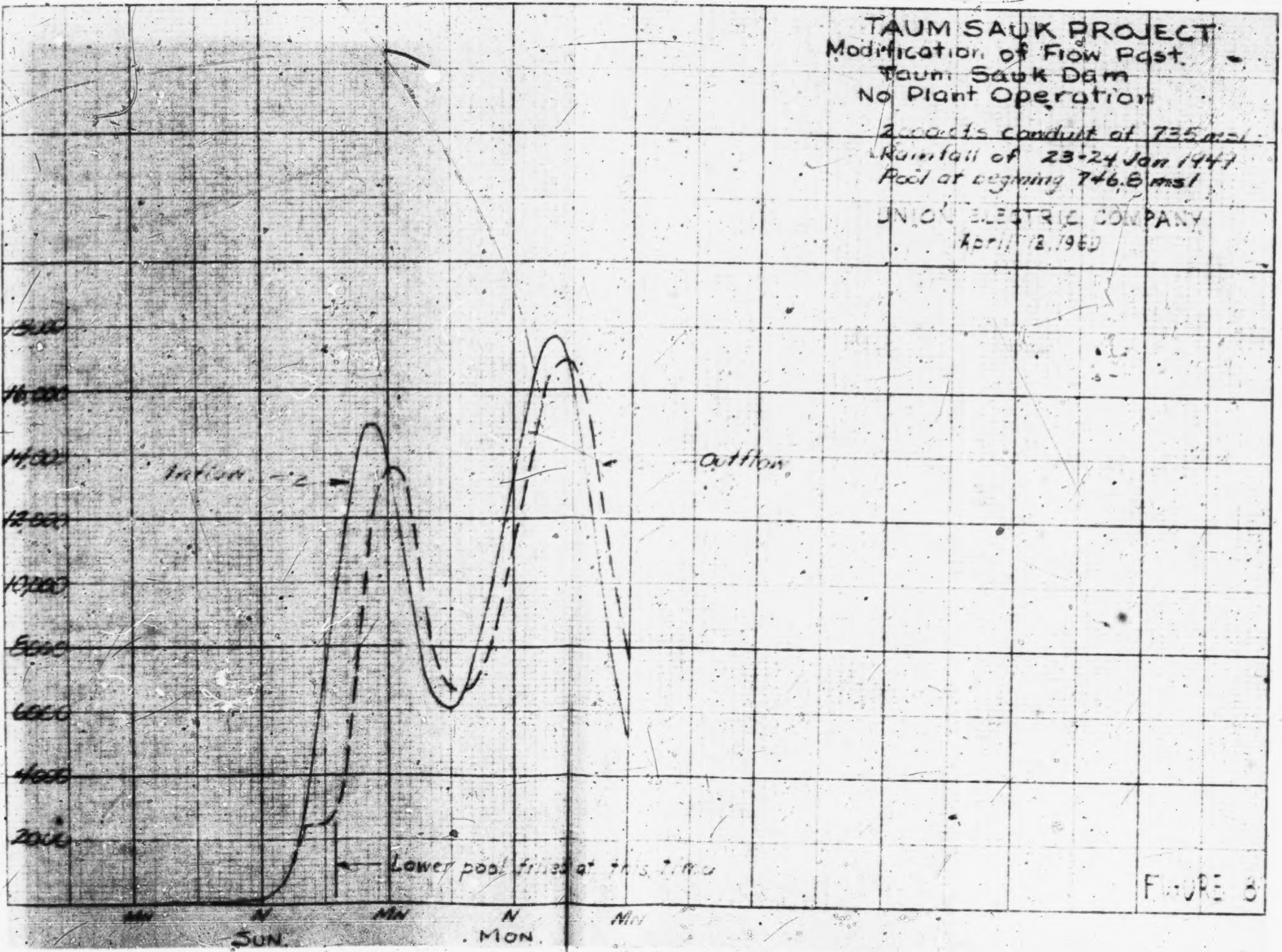


TAUM SAUK PROJECT
Modification of Stage Below
Taum Sauk Dam
No Plant Operation

2000 c.f.s. Conduit at 735 msl
Rainfall of 23-24 Jan. 1947
Pool at beginning 746.6 msl.

UNION ELECTRIC COMPANY
April 12, 1960

FIGURE 47



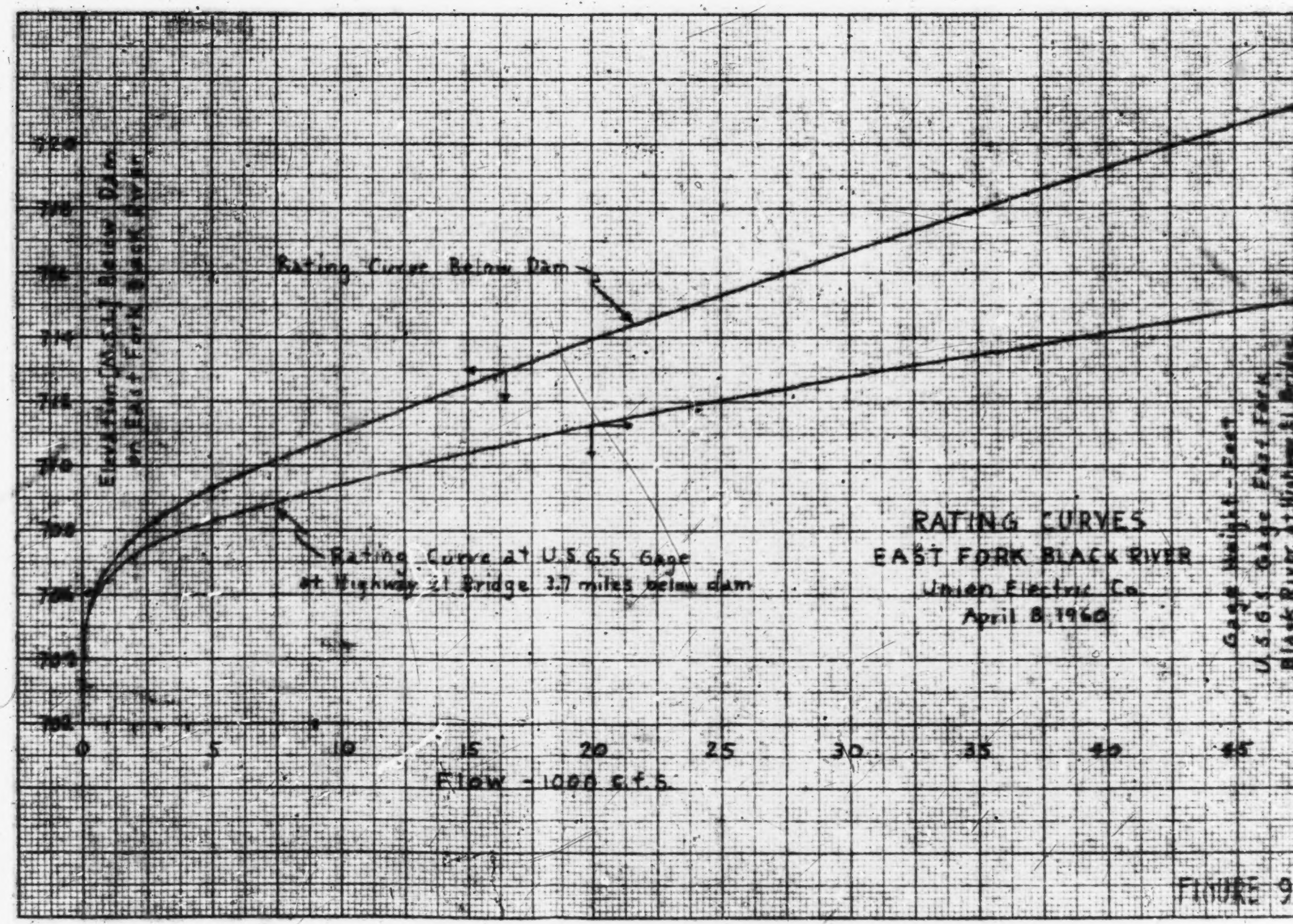
TAUM SAUK PROJECT
Modification of Flow Past
Taum Sauk Dam
No Plant Operation

2000 cfs conduit at 735 msl
Rainfall of 23-24 Jan 1947
Pool at beginning 746.8 msl

UNION ELECTRIC COMPANY
April 12, 1960

FIGURE 8

FIGURE 9



RATING CURVES
EAST FORK BLACK RIVER
Union Electric Co.
April 8, 1960

BEFORE THE FEDERAL POWER COMMISSION

[223–224]

## [225] Before the Federal Power Commission

*Exhibit 8*

In the matter of Union Electric Company Docket No. ——

On February 1, 1960, Union Electric Company (hereinafter called "Applicant") filed with the Federal Power Commission (hereinafter called "Commission") pursuant to Section 23(b) of the Federal Power Act (16 U.S.C.A. § 817) a Declaration of Intention, Docket No. E–6927, in which Applicant announced its proposed construction, operation and maintenance of a pumped-storage electric generating station as therein described, and in which Applicant asserted, and continues to assert, that the Commission is without jurisdiction to require a license for the project because no public lands or reservations will be affected and because the interests of interstate or foreign commerce will not be affected thereby. However, because of the importance to Applicant and its customers of the timely construction of the project, Applicant herewith files with the Commission the following application for a license, pursuant to Section 4(e) of the Federal Power Act (16 U.S.C.A. § 797), to authorize construction, operation and maintenance of such project so that the preliminary procedural steps leading to a license may be taken while the Commission is making a final determination of the jurisdictional question. Applicant urges that this filing not impede determination of the jurisdictional question presented by the Declaration of Intention and that such question be determined prior to consideration of other questions and issues which may be raised by this license application.

### Application for License

1. Union Electric Company, a corporation having its principal executive office at 315 North Twelfth Boulevard, St. Louis 1, Missouri, hereby makes application to the Commission for a license to authorize the construction, operation and maintenance of certain project works described herein. Pursuant to Section 4.31, *Regulations* [226] *Under The Federal*

*Power Act,* this application contains the information required under Section 4.40 (a), (b), (c), (d), (e), (f), and (h), together with Exhibits A, B, E, G, J, K, L, M, and O, required under Section 4.41. Applicant will furnish the balance of the information required under Sections 4.40 and 4.41 at such times as the Secretary of the Commission directs.

2. Communications in regard to this application should be addressed to: E. J. Shapiro, Secretary of Applicant, whose address is 315 North Twelfth Boulevard, St. Louis 1, Missouri.

3. Applicant is a corporation organized and existing under the laws of the State of Missouri and is duly authorized to conduct business in the State of Illinois and the State of Iowa.

4. Applicant is not a subsidiary of any other company, but owns all of the common stock of Missouri Power & Light Company and 99.9% of the common stock of Missouri Edison Company, both of which are operating public utility companies incorporated under the laws of the State of Missouri all of the capital stock of Union Colliery Company, incorporated under the laws of Missouri and which owns certain coal reserves in the State of Illinois, but is not now an operating company; and 24,800 shares, or 40%, of the capital stock of Electric Energy, Inc., incorporated under the laws of Illinois and which supplies a substantial part of the electric energy requirements of the Atomic Energy Commission installation near Paducah, Kentucky.

5. Applicant is a public utility subject to the jurisdiction of the Public Service Commission of the State of Missouri, rendering electric service in eastern and central Missouri and steam heating service in a limited portion of downtown St. Louis. Applicant is also engaged in rendering electric service in portions of Illinois and gas service in Alton, Illinois and vicinity, as a public utility under the jurisdiction of the Illinois Commerce Commission as well as electric service in southeastern Iowa.

6. A concise general description of the proposed Taum Sauk Project and principal project works, as required by [227] Section 4.40(e), *Regulations Under The Federal Power Act,* is contained in the Declaration of Intention, Docket No. E-6927,

and filings and submittals made in conjunction therewith, all of which are by reference incorporated herein and made a part hereof.

7. The location of the project, the region of its location and information on the stream on and near which the project will be located, as required by Section 4.40(f), *Regulations Under The Federal Power Act*, are as shown in the previously incorporated Declaration of Intention and filings and submittals made in conjunction therewith. The East Fork of the Black River and Taum Sauk Creek are not used or suitable for use for the transportation of persons or property in intrastate, interstate or foreign commerce.

8. The initial scheme of development, including installed capacity, as required by Section 4.40(h), *Regulations Under The Federal Power Act*, is as shown in the previously incorporated Declaration of Intention and filings and submittals made in conjunction therewith. Applicant contemplates no development of the project beyond that shown.

9. The following exhibits are filed herewith and are hereby made a part of this application:

Exhibit A Certificate and Articles of Incorporation, Certificate of Organization and By-Laws.

Exhibit B Board of Directors Resolution Authorizing Filing of Application.

Exhibit E Statement of Nature, Extent and Ownership of Water Rights.

Exhibit G Statement of Financial Ability to Finance Project.

Exhibit J Location Map.

Exhibit K Detail Map—Project Area.

Exhibit L General Design Drawings (5 sheets).

Exhibit M General Description of Mechanical, Electrical and Transmission Equipment.

[228] Exhibit O Statement of Time for Beginning and Completing Construction.

In Witness Whereof Applicant has caused its name to be hereunto signed by John A. Woodbridge, a Vice-President, and

**its corporate seal to be hereto affixed by E. J. Shapiro, its Secretary, thereunto duly authorized this 9th day of June, 1960.**

UNION ELECTRIC COMPANY,
By JOHN A. WOODBRIDGE,
*Vice-President.*

Attest:
E. J. Shapiro,
*Secretary.*
[SEAL]

---

VERIFICATION

STATE OF MISSOURI,
*City of St. Louis, ss:*

JOHN A. WOODBRIDGE, being duly sworn, deposes and says: That he is a Vice-President of Union Electric Company, the Applicant for a license, that he has read the foregoing application and knows the contents thereof; that the same is true to the best of his knowledge and belief.

John A. Woodbridge,
JOHN A. WOODBRIDGE.

Subscribed and sworn to before me this 9th day of June, 1960.

O. W. JOHNSON,
[SEAL] *Notary Public.*

My Commission expires April 19, 1962.

---

[229] Before the Federal Power Commission

In the Matter of Union Electric Company

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing "Application for License" by mailing a copy thereof, properly addressed and postage prepaid, to the following:

Public Service Commission of Missouri,
Jefferson City, Missouri.

Dated at St. Louis, Missouri this 9th day of June, 1960.

JOHN A. WOODBRIDGE,
*Vice President.*

## Before the Federal Power Commission

*Exhibit 9 A*

(Exhibit B.)

### *Certified Copy of Resolution Adopted at a Special Meeting of the Board of Directors of Union Electric Company Held on Friday, December 11, 1959*

Resolved, that the proper officers of the Company be and hereby are authorized to enter into the necessary contracts for the construction of the pumped-hydro project to be known as the Taum Sauk Project and to proceed with obtaining the necessary regulatory approvals therefor.

I hereby certify that the foregoing is a true and correct copy of resolution adopted at a special meeting of the Board of Directors of Union Electric Company, held pursuant to due notice at the office of the Company, 315 North Twelfth Boulevard, St. Louis, Missouri, on Friday, December 11, 1959, and that such resolution is still in full force and effect.

June 8, 1960.

E. J. Shapiro,
*Secretary.*

[SEAL]

---

## [230] Before the Federal Power Commission

*Exhibit 9 B*

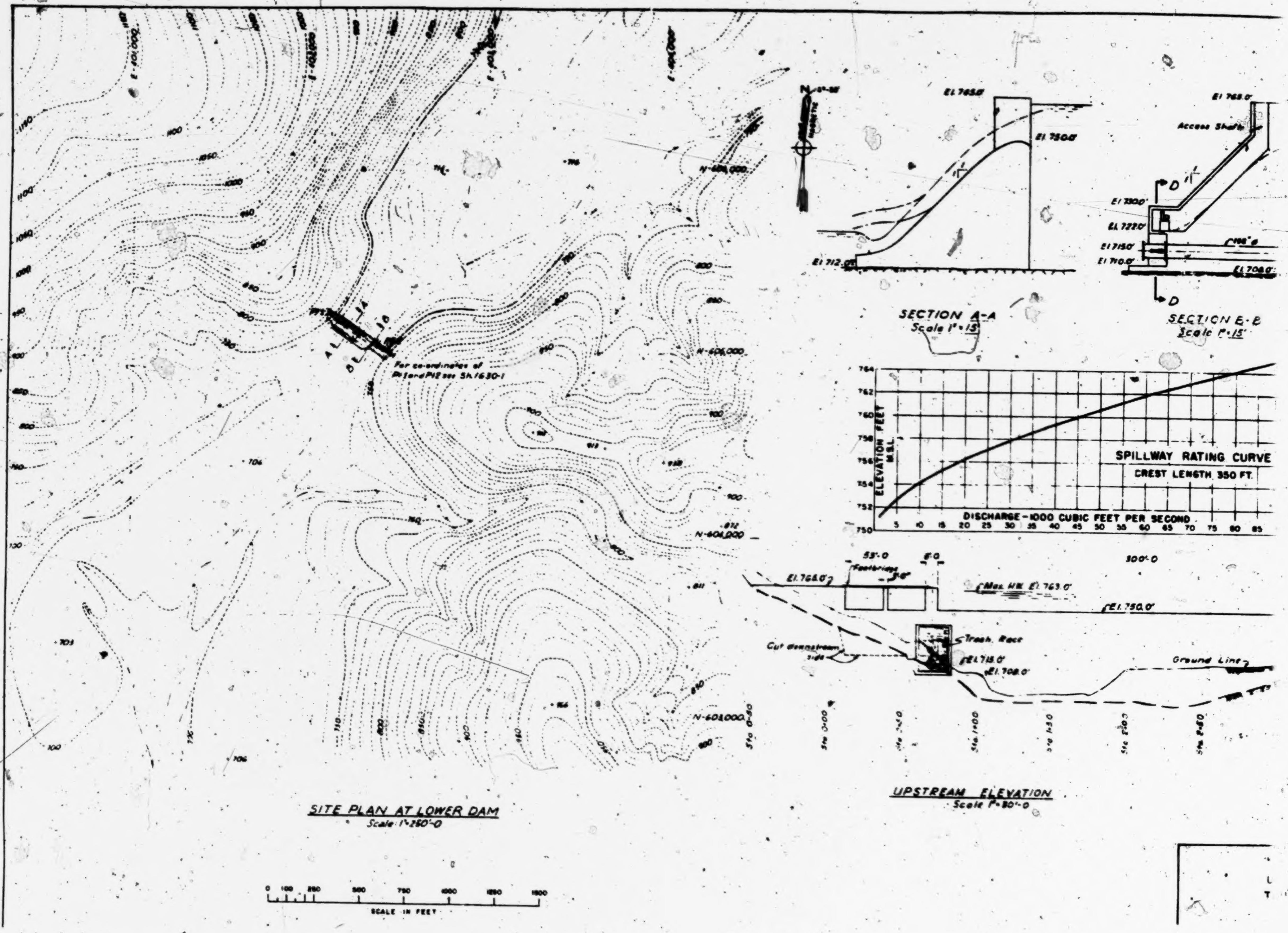
(Exhibit E.)

### *Statement of Nature, Extent and Ownership of Water Rights*

Union Electric Company, Applicant herein, has acquired fee simple title to substantially all lands riparian to the East Fork of the Black River and Taum Sauk Creek in the area that will become the lower pool of the proposed project. Those lands not yet acquired will be obtained through purchase or exercise of power of eminent domain. Under Missouri law, said streams are non-navigable waterways and a riparian owner may make reasonable use of the water therein. Further, corporations, as Applicant, organized to construct, operate and maintain electric power and light works, may petition the circuit court of the county in which it is proposing to construct a dam, under Chapter 236 Revised Statutes of Missouri 1949, for permission so to do. Applicant proposes to file such petition in the near future.

Chapter 257 Revised Statutes of Missouri (Laws 1959) provides for the creation, organization and operation of river basin conservancy districts for the purpose of alleviating floods and droughts, conserving and developing the resources of the State and promoting public health. Such district, if created, would have specified powers over the watercourses, ponds, lakes, creeks and natural streams within its geographical limits. No such district has been formed with jurisdiction over the streams in question in this application.

4. (Face p. 218)


SITE PLAN AT LOWER DAM
Scale 1"=250'-0
SCALE IN FEET
0 100 250 500 750 1000 1250 1500
For co-ordinates of Pit 1 and Pit 2 see Sh.1630-1
N-604,000
N-603,000
N-602,000
SECTION A-A
Scale 1"=15'
EL 765.0'
EL 750.0'
EL 712.0'
SECTION E-E
Scale 1"=15'
Access Shafts
EL 730.0'
EL 722.0'
EL 715.0'
EL 710.0'
EL 708.0'
SPILLWAY RATING CURVE
CREST LENGTH 350 FT.
ELEVATION FEET M.S.L.
DISCHARGE-1000 CUBIC FEET PER SECOND
UPSTREAM ELEVATION
Scale 1"=30'-0
EL 768.0'
Footbridge
Max. HW. EL 763.0'
EL 750.0'
Trash Rack
Cut downstream side
EL 718.0'
EL 708.0'
Ground Line
53'-0
8'-0
300'-0

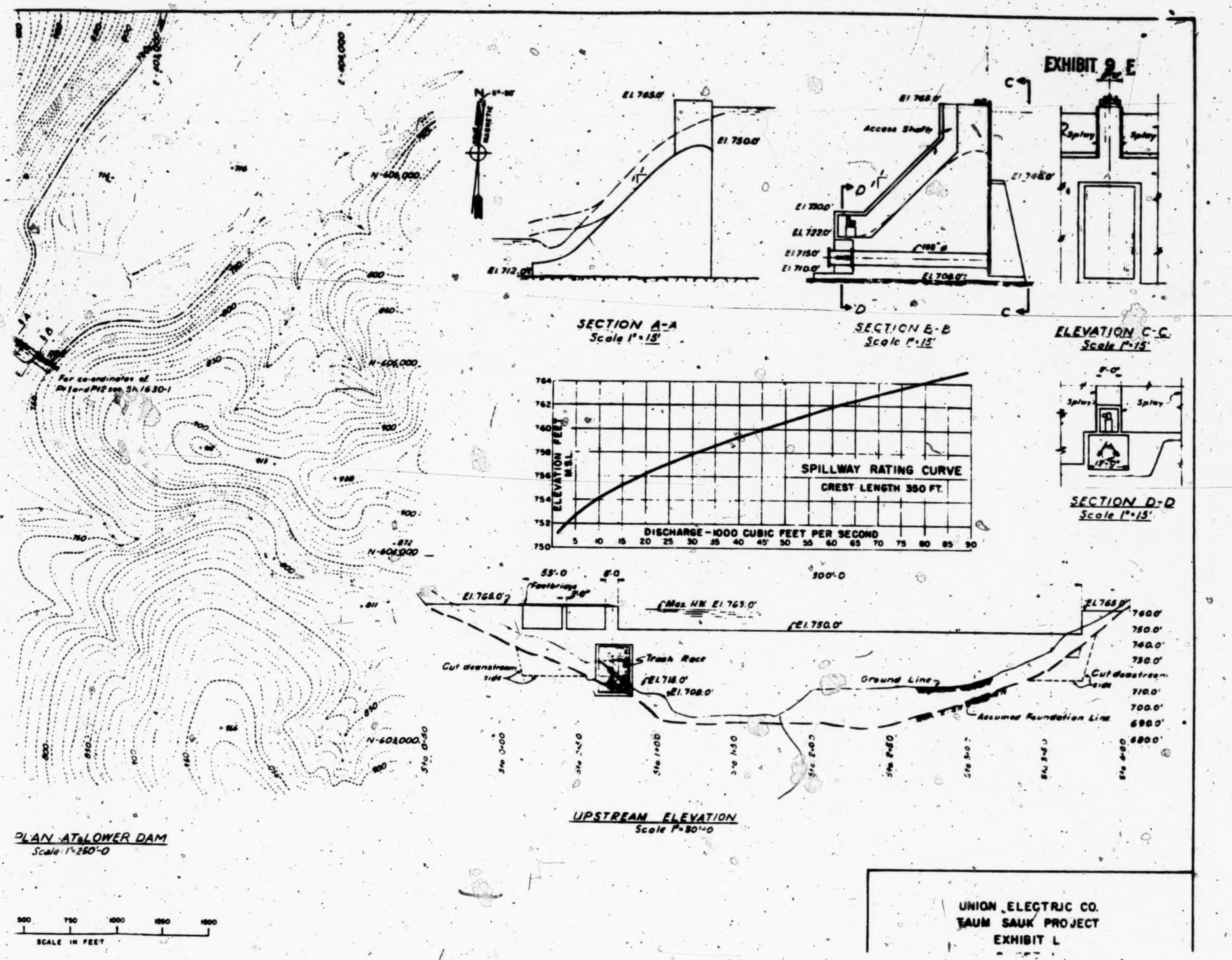
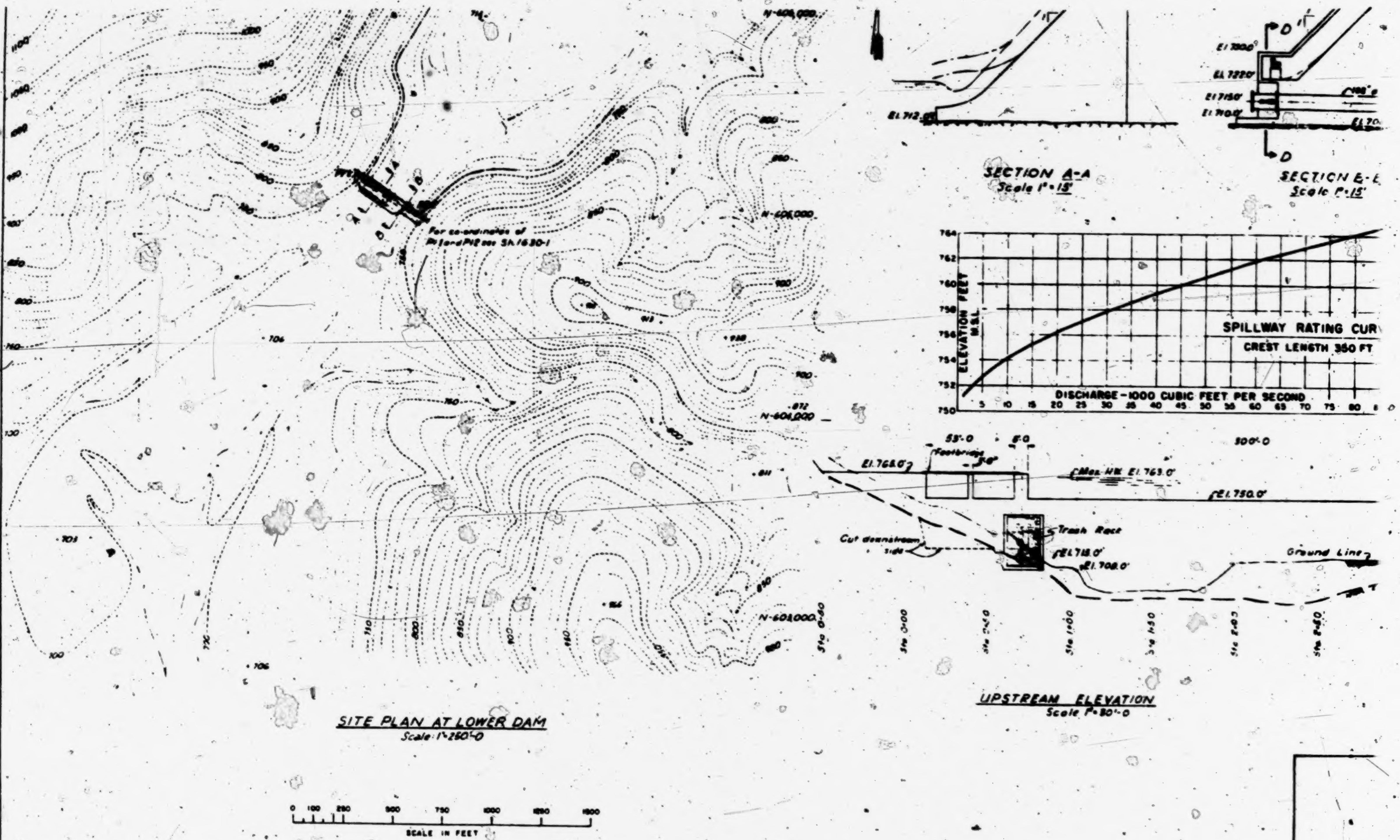
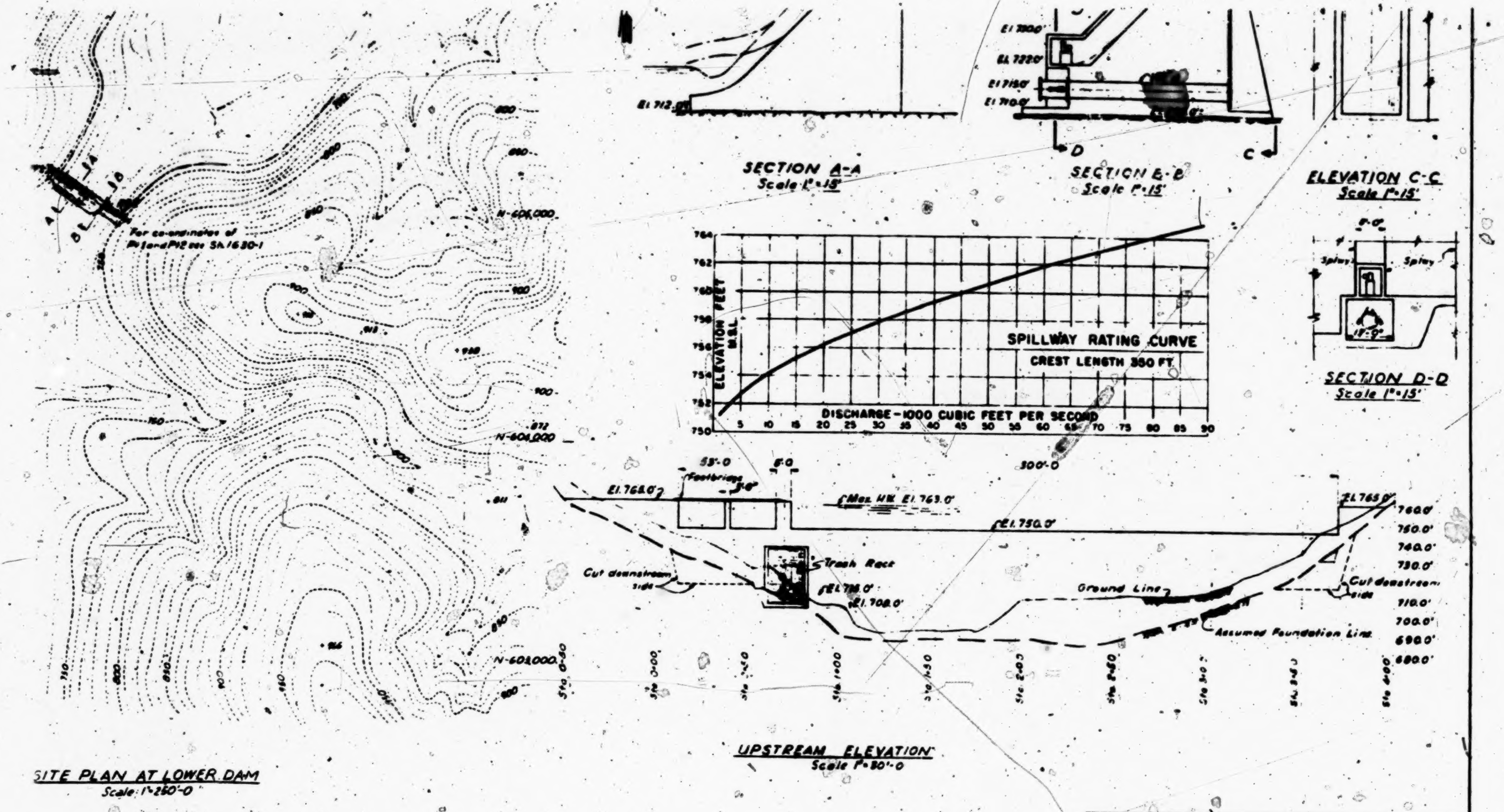


EXHIBIT 2 E
PLAN AT LOWER DAM
Scale 1"=250'-0
SCALE IN FEET
500 750 1000 1250 1500
SECTION A-A
Scale 1"=15'
SECTION E-E
Scale 1"=15'
ELEVATION C-C
Scale 1"=15'
SECTION D-D
Scale 1"=15'
Splay
SPILLWAY RATING CURVE
CREST LENGTH 350 FT.
DISCHARGE-1000 CUBIC FEET PER SECOND
UPSTREAM ELEVATION
Scale 1"=30'-0
EL 765.0'
Ground Line
Cut downstream side
Assumed Foundation Line
760.0'
750.0'
740.0'
730.0'
710.0'
700.0'
690.0'
680.0'

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT L


SECTION A-A
Scale 1" = 15'
SECTION B-B
Scale 1" = 15'
El. 712.0'
El. 720.0'
El. 722.0'
El. 715.0'
El. 710.0'
For co-ordinates of Pt. 1 and Pt. 2 see Sh. 1630-1
N-606,000
N-604,000
N-602,000
SPILLWAY RATING CURVE
CREST LENGTH 350 FT
ELEVATION FEET M.S.L.
DISCHARGE - 1000 CUBIC FEET PER SECOND
55'-0
5'-0
300'-0
Footbridge
El. 768.0'
Max. HW El. 763.0'
El. 750.0'
Trash Rack
Cut downstream side
El. 718.0'
El. 708.0'
Ground Line
UPSTREAM ELEVATION
Scale 1" = 30'-0
SITE PLAN AT LOWER DAM
Scale 1" = 250'-0
0 100 250 500 750 1000 1250 1500
SCALE IN FEET

LOWER DAM
SITE PLAN & GENERAL DESIGN


SECTION A-A
Scale 1" = 15'
SECTION B-B
Scale 1" = 15'
ELEVATION C-C
Scale 1" = 15'
SECTION D-D
Scale 1" = 15'
Splay
17'-0"
8'-0"
El. 712.0'
El. 715.0'
El. 710.0'
For co-ordinates of Pt. 1 and Pt. 2 see Sh. 1630-1
N-606,000
N-604,000
N-602,000
SPILLWAY RATING CURVE
CREST LENGTH 350 FT
ELEVATION FEET M.S.L.
DISCHARGE - 1000 CUBIC FEET PER SECOND
750 752 754 756 758 760 762 764
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
55'-0
5'-0
300'-0
Footbridge
El. 768.0'
Max. HW El. 763.0'
El. 750.0'
El. 765.0'
Trash Rack
Cut downstream side
El. 718.0'
El. 708.0'
Ground Line
Assumed Foundation Line
760.0' 750.0' 740.0' 730.0' 710.0' 700.0' 690.0' 680.0'
Sta 0+00 Sta 0+50 Sta 1+00 Sta 1+50 Sta 2+00 Sta 2+50 Sta 3+00 Sta 3+50 Sta 4+00
UPSTREAM ELEVATION
Scale 1" = 30'-0
SITE PLAN AT LOWER DAM
Scale 1" = 250'-0
SCALE IN FEET

LOWER DAM
SITE PLAN & GENERAL DESIGN

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT L
SHEET 1

749-114 O - 64 (Face p. 218)

# Before the Federal Power Commission

[231-232]

## Before the Federal Power Commission

### *Exhibit 9 K*

(Exhibit M.)

### *General Description of Mechanical, Electrical and Transmission Equipment*

The pumping and generating station will have the general aspects of a conventional hydroelectric plant with such modifications as are necessary to accommodate it to the special use as a reversible pumping and generating station. Said station will be equipped with two main units each of which will consist of a reversible pump-turbine directly connected to a reversible generator-motor. Each unit, operating as a turbine at 200 revolutions per minute, will have an output of 240,000 horsepower at a minimum net head of 750 feet. Each unit, operating as a pump at 200 revolutions per minute, will deliver at least 2,450 cubic feet per second at a total dynamic head of 810 feet, which is near the minimum head. Each unit will have rated capacity of approximately 175 megawatts and will absorb electrical energy at approximately the same rate when pumping. ame plate ratings have not been established but preliminary information indicates the following:

- Turbine output—292,000 horsepower at 835 feet net head;
- Generator output—204,000 kilovolt-amperes at 100% power factor; and
- Motor output—240,200 horsepower at 90% power factor.

For generator output versus turbine discharge for minimum and average heads, see Exhibit "C", Declaration of Intention, Docket No. E-6927.

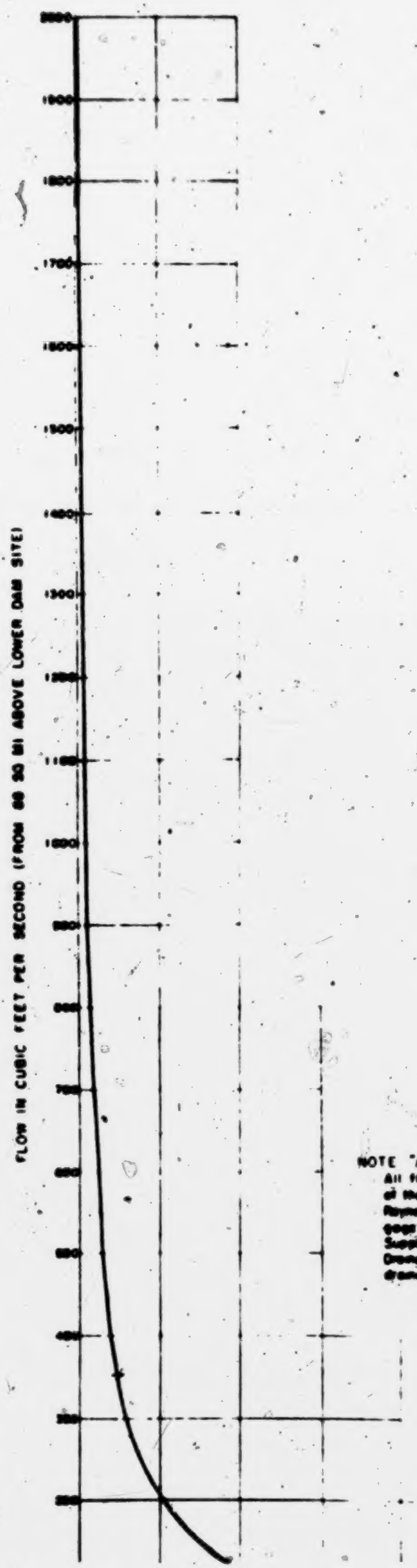
Each unit will be connected, through suitable disconnecting switches, circuit breakers and transformers, to one of two 138,000 volt transmission circuits. The two circuits, carried approximately thirty miles to the northeast on steel tower or wooden "H" frame structures, will connect the proposed plant with Applicant's Rivermines Substation, a point of junction with Applicant's interconnected primary transmission system.

*Exhibit 9 L*

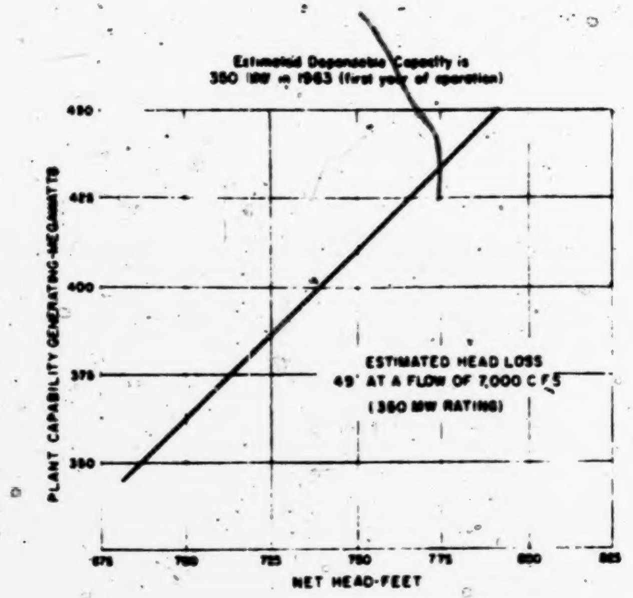
(Exhibit O.)

### *Statement of Time for Beginning and Completing Construction*

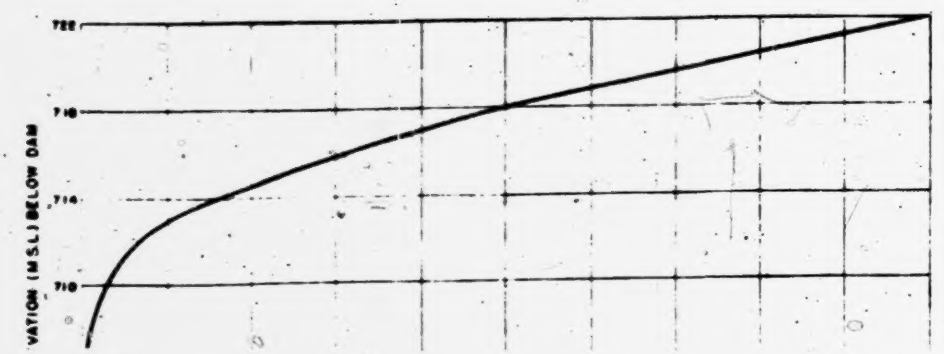
The proposed project is scheduled to be completed in its entirety by June 1, 1963. It is therefore necessary that construction be started as soon as possible.



NOTE "A"
All flow information shown is based on a drainage area of 88 square miles of the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U S G S gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U S G S from October 1, 1939 to September 30, 1957 Drainage area, 484 square miles - flow assumed directly proportional to drainage area.

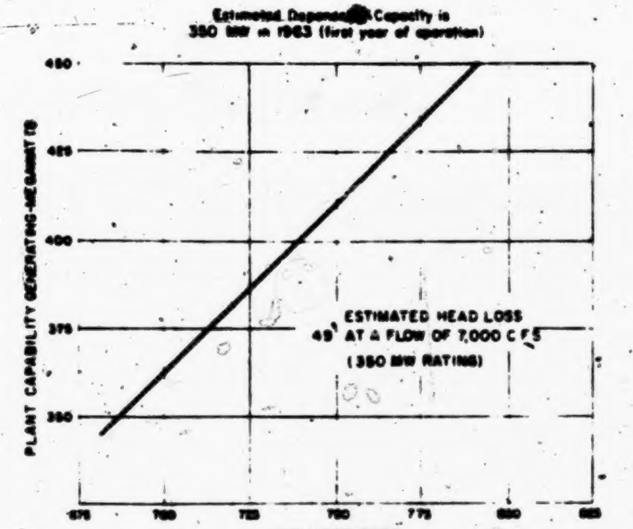


ESTIMATED PLANT CAPABILITY VERSUS HEAD



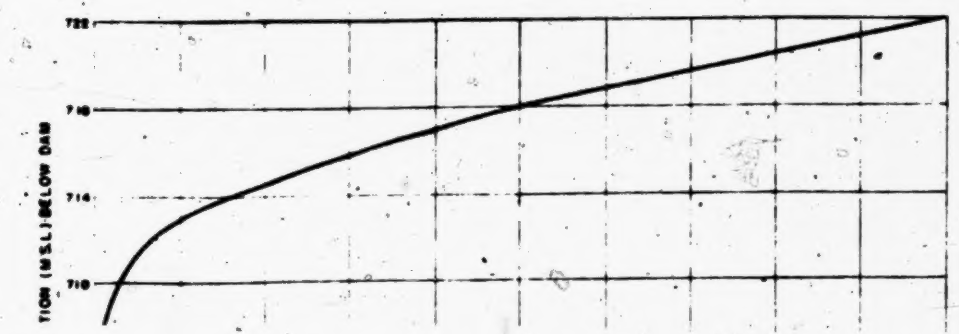
Th
by th
Dat

# EXHIBIT 14 A



ESTIMATED PLANT CAPABILITY VERSUS HEAD

E "A"
All flow information shown is based on a drainage area of 88 square miles of the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U S G S gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U S G S from October 1, 1939 to September 30, 1957 Drainage area, 484 square miles - flow assumed directly proportional to drainage area.

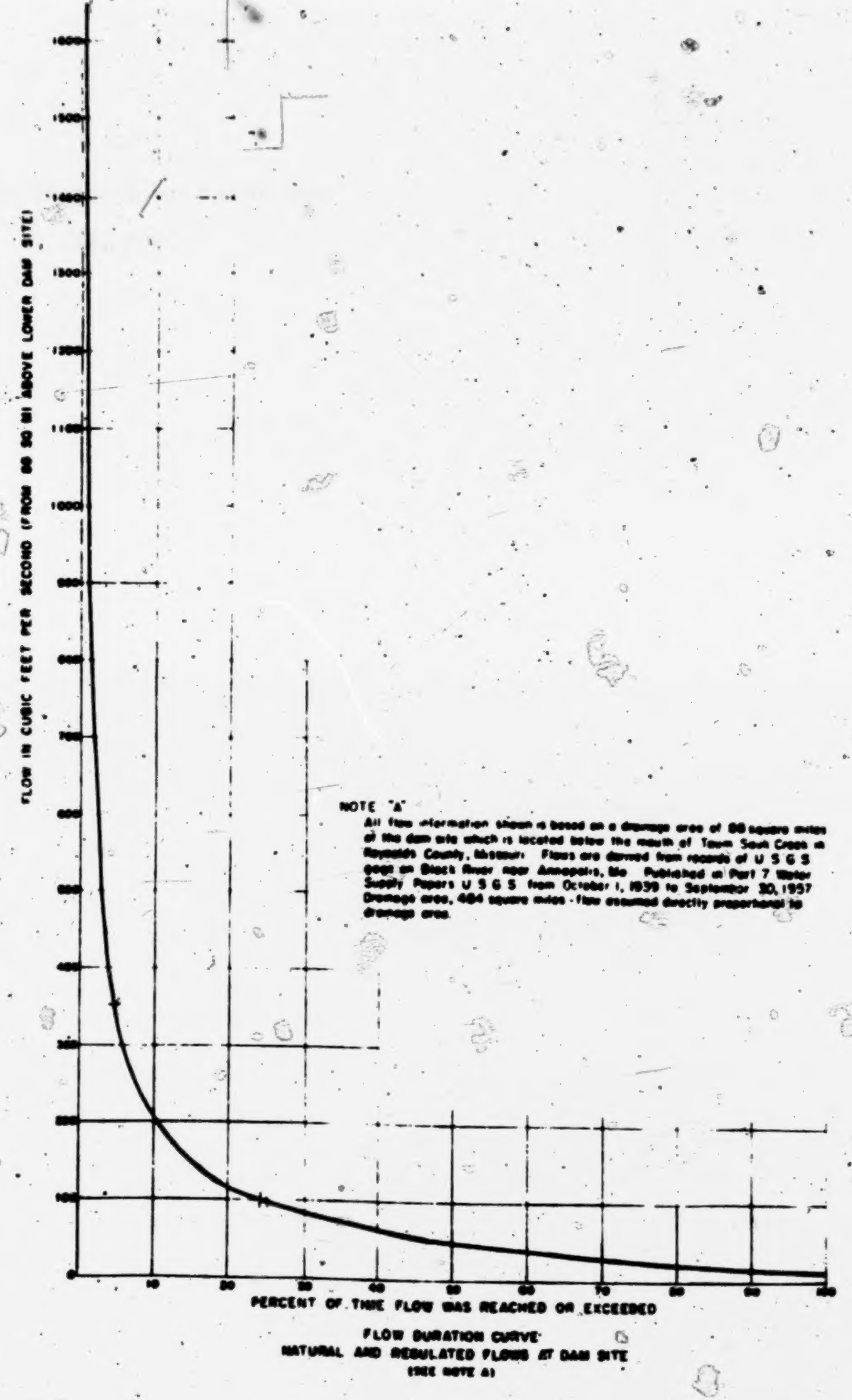


This amended exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960
Dated at St Louis, Missouri the 6th day of December 1960

UNION ELECTRIC COMPANY

Vice President

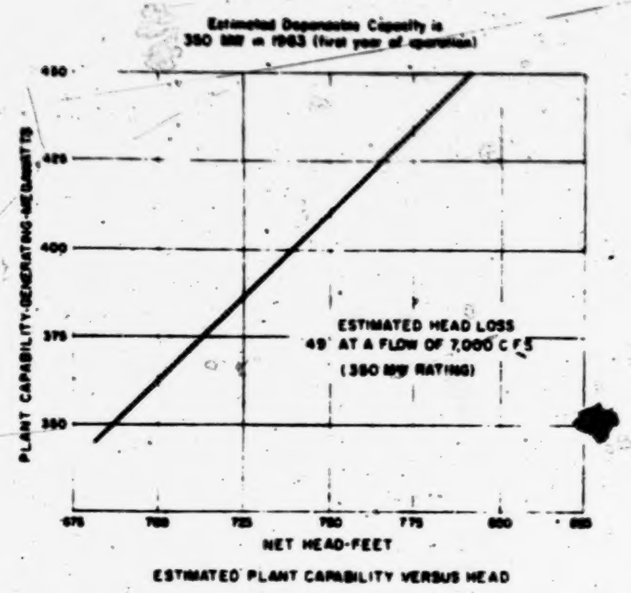
UNION ELECTRIC CO.
TAUM SAUK PROJECT



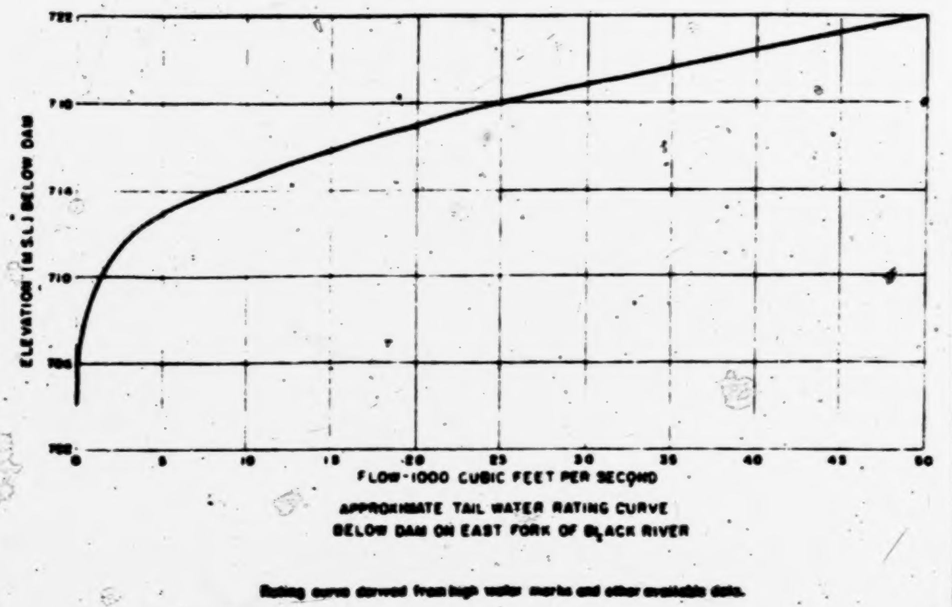
NOTE "A"
All flow information shown is based on a drainage area of 88 square miles of the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U S G S gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U S G S from October 1, 1939 to September 30, 1957. Drainage area, 484 square miles - flow assumed directly proportional to drainage area.

FLOW DURATION CURVE
NATURAL AND REGULATED FLOWS AT DAM SITE
(SEE NOTE A)

Estimated Dependable Capacity is
350 MW in 1963 (first year of operation)



ESTIMATED PLANT CAPABILITY VERSUS HEAD

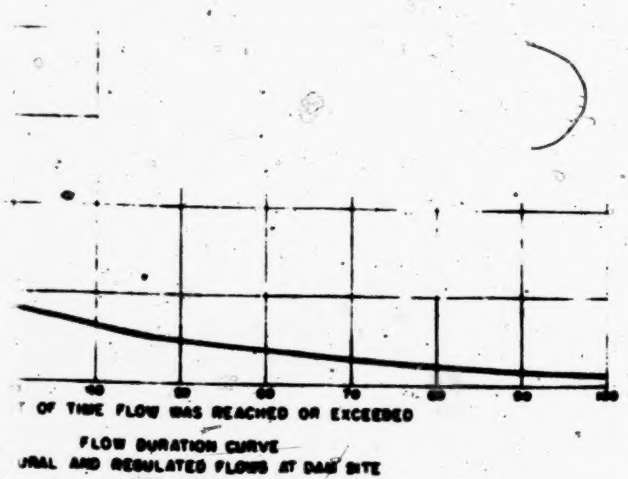


APPROXIMATE TAIL WATER RATING CURVE
BELOW DAM ON EAST FORK OF BLACK RIVER

Rating curve derived from high water marks and other available data.

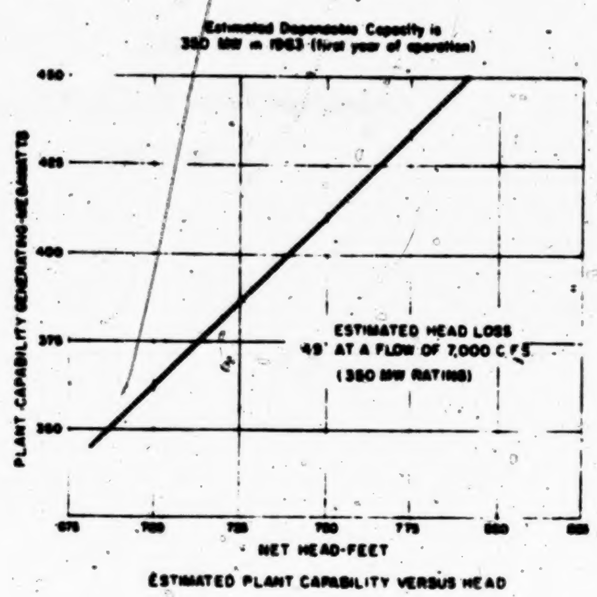
This
by the
Dated

NOTE "A"
All flow information shown is based on a drainage area of 88 square miles of the dam site which is located below the mouth of Taum Sauk Creek in Reynolds County, Missouri. Flows are derived from records of U S G S gage on Black River near Annapolis, Mo. Published in Part 7 Water Supply Papers U S G S from October 1, 1939 to September 30, 1957. Drainage area, 484 square miles - flow assumed directly proportional to drainage area.

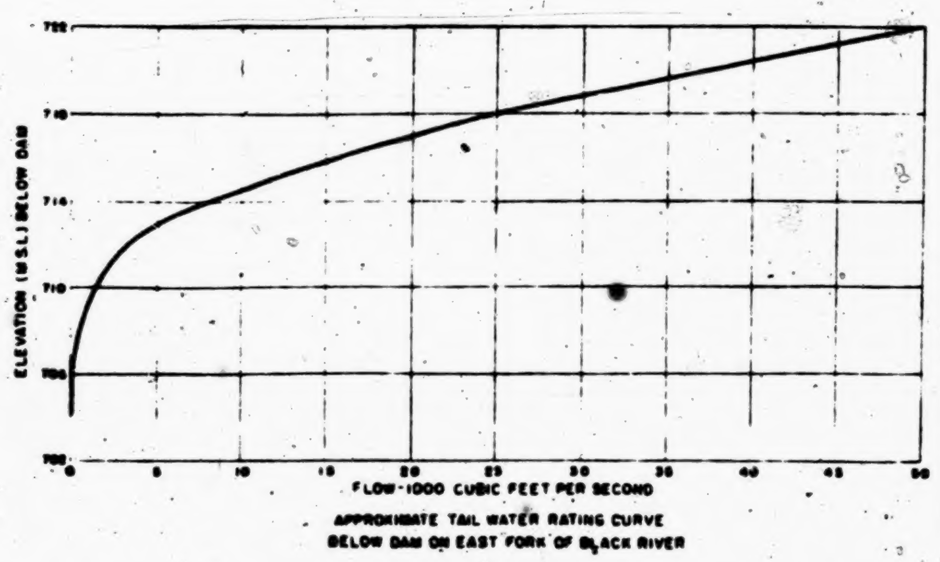


FLOW DURATION CURVE
URAL AND REGULATED FLOWS AT DAM SITE
(SEE NOTE A)

Estimated Dependable Capacity is
350 MW in 1963 (first year of operation)



ESTIMATED PLANT CAPABILITY VERSUS HEAD



APPROXIMATE TAIL WATER RATING CURVE
BELOW DAM ON EAST FORK OF BLACK RIVER

Rating curve derived from high water marks and other available data.

This amended exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960
Dated at St Louis, Missouri the 6th day of December 1960

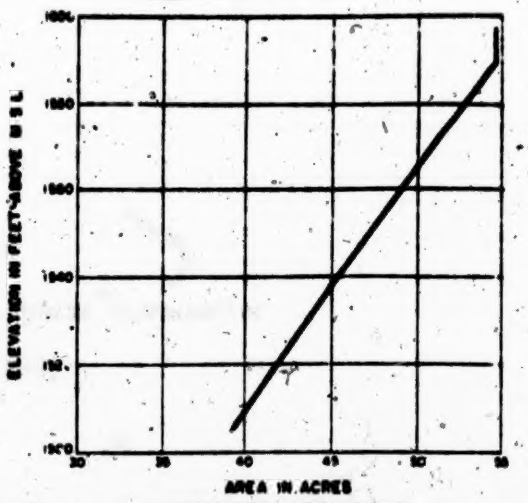
UNION ELECTRIC COMPANY

Vice President

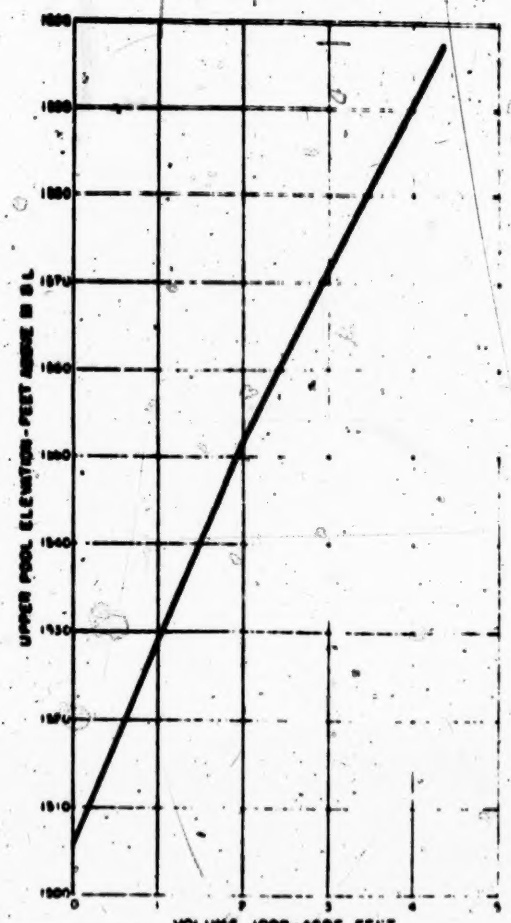
**UNION ELECTRIC CO.**
**TAUM SAUK PROJECT**
**EXHIBIT I**

# Before the Federal Power Commission

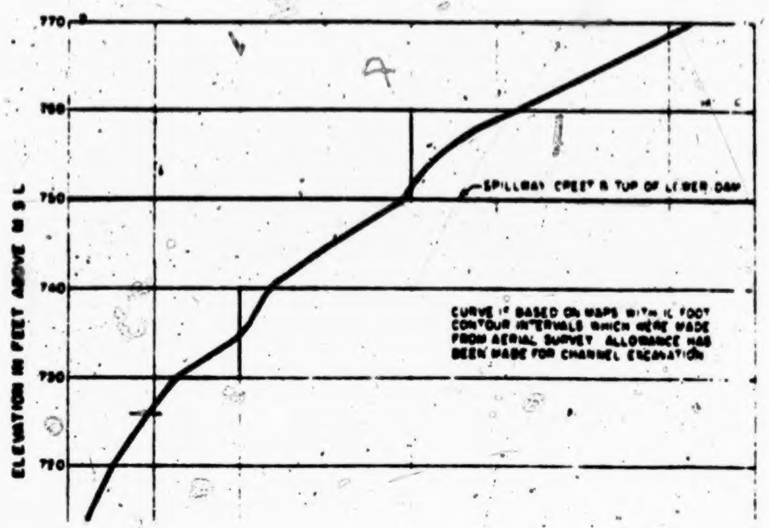
[235–236]

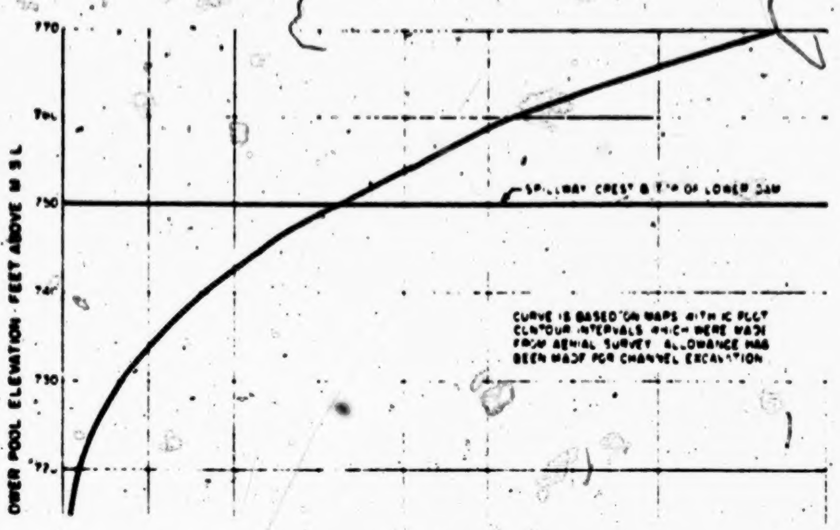


UPPER POOL AREA CURVE

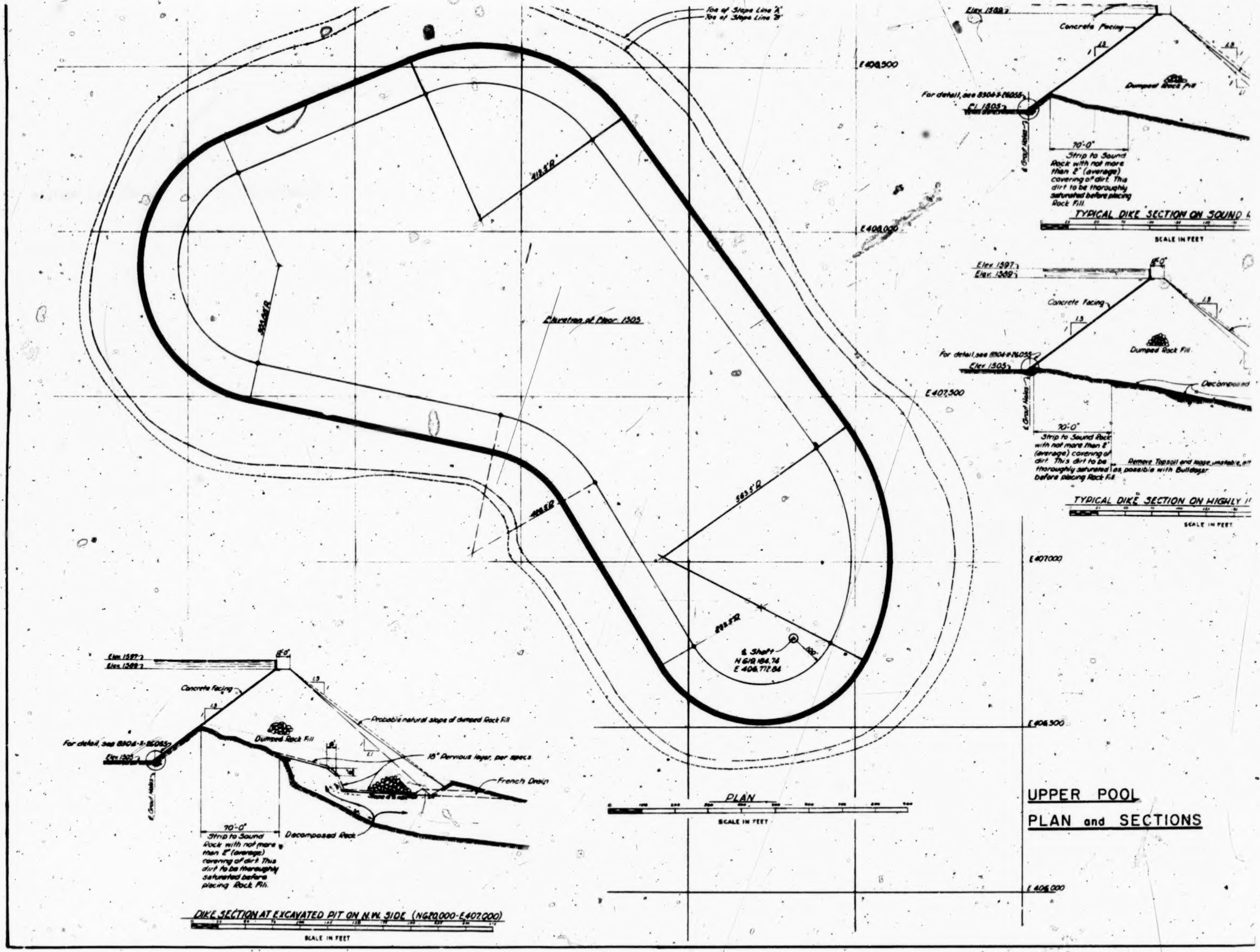


UPPER POOL VOLUME CURVE





Thi
By the
Join

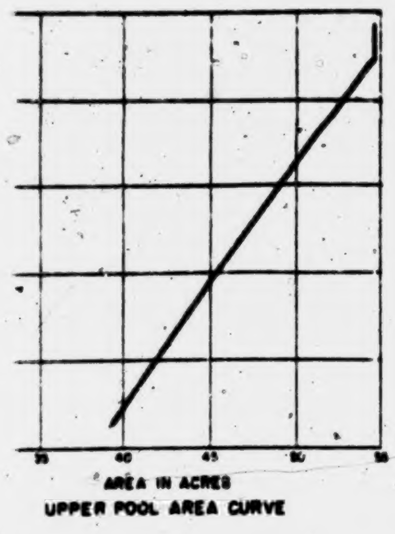

Toe of Slope Line "A"
Toe of Slope Line "B"
E 408,500
E 408,000
E 407,500
E 407,000
E 406,500
E 406,000
419.5' R
553.04' R
Elevation of Floor 1505
563.5' R
404.5' R
293.5' R
℄ Shaft
N 619,184.74
E 406,712.84
100'
PLAN
SCALE IN FEET
Elev. 1589
Concrete Facing
1.3
1
1.8
Dumped Rock Fill
For detail, see 8304-X-26055
El. 1505
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
TYPICAL DIKE SECTION ON SOUND
SCALE IN FEET
Elev. 1597
Elev. 1589
15'-0"
Concrete Facing
1.3
1
1.8
Dumped Rock Fill
For detail, see 8304-X-26055
Elev. 1505
Decomposed
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Remove Topsoil and loose unstable ... as possible with Bulldozer
TYPICAL DIKE SECTION ON HIGHLY
SCALE IN FEET
Elev. 1597
Elev. 1589
15'-0"
Concrete Facing
1.3
1
Dumped Rock Fill
Probable natural slope of dumped Rock Fill
18" Pervious layer, per specs
French Drain
2.1
For detail, see 8304-X-26055
Elev. 1505
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Decomposed Rock
DIKE SECTION AT EXCAVATED PIT ON N.W. SIDE (N620,000-E407,000)
SCALE IN FEET

UPPER POOL
PLAN and SECTIONS

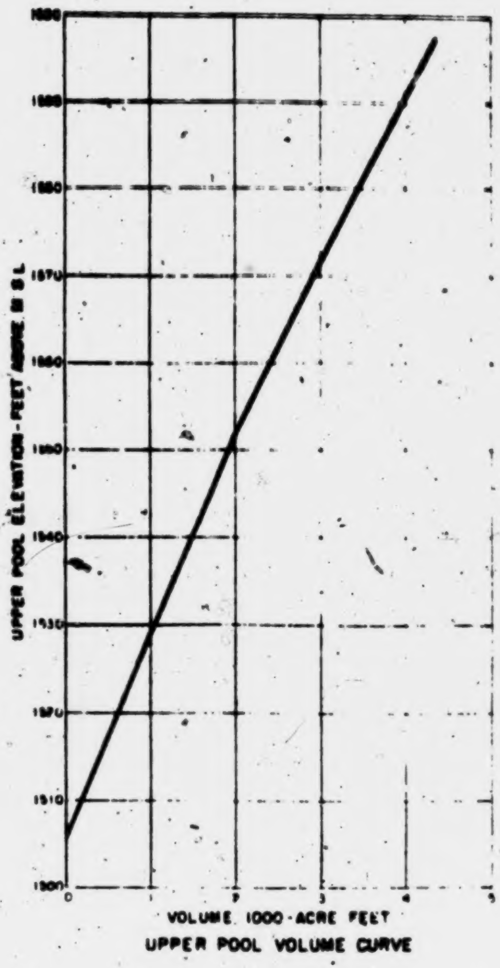
224)

740-114 O-64 (Face p. 326)

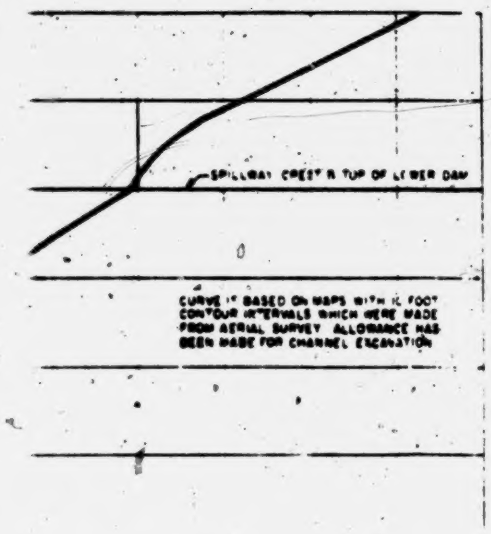
**EXHIBIT 14 B**

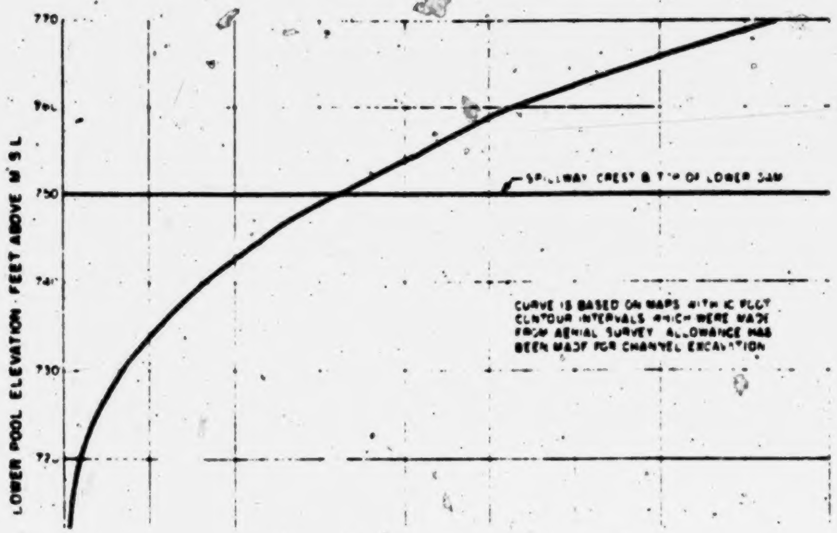


UPPER POOL AREA CURVE



UPPER POOL VOLUME CURVE





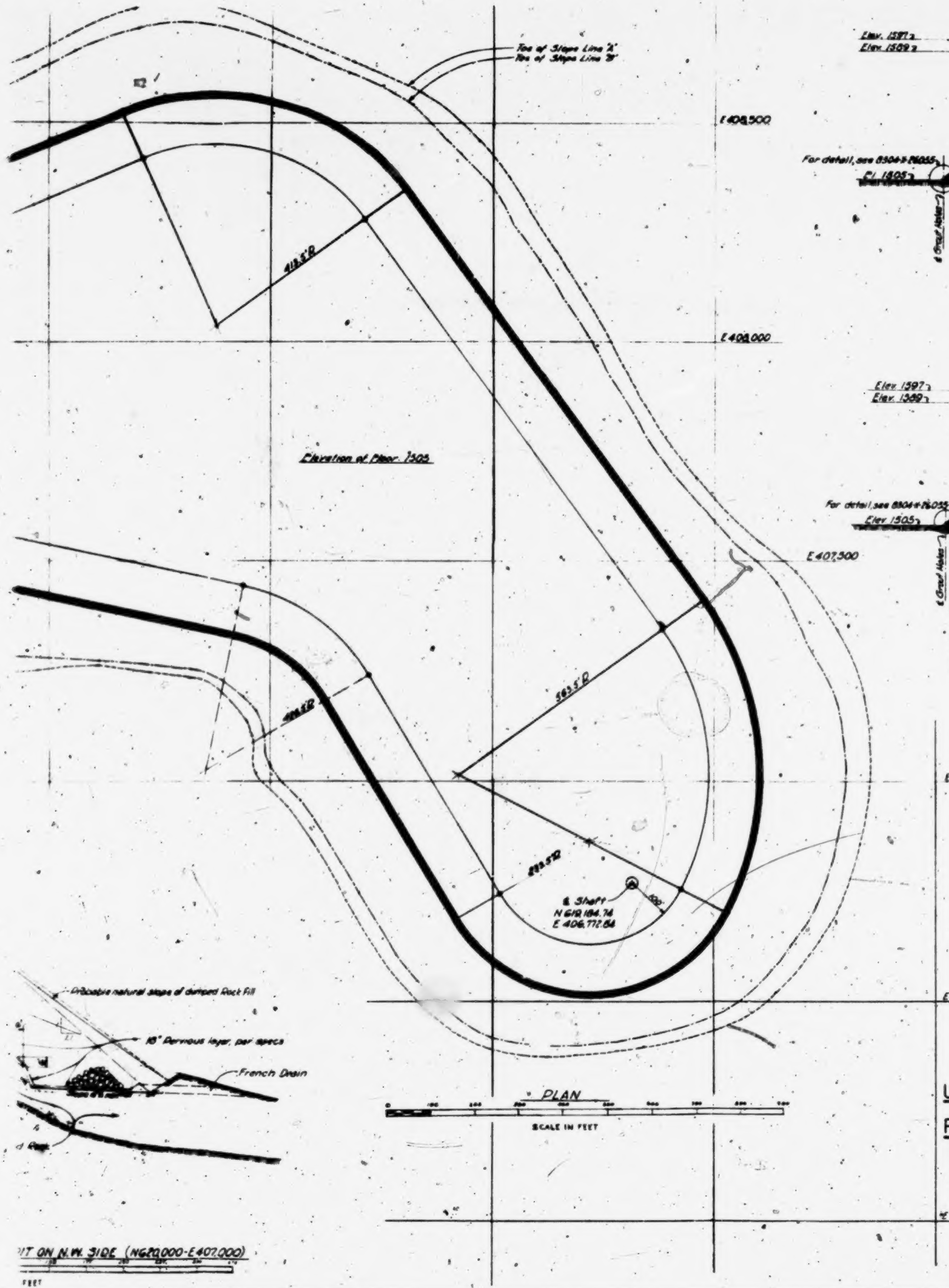
This exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960.
Dated at St. Louis, Missouri the 6th day of December 1960

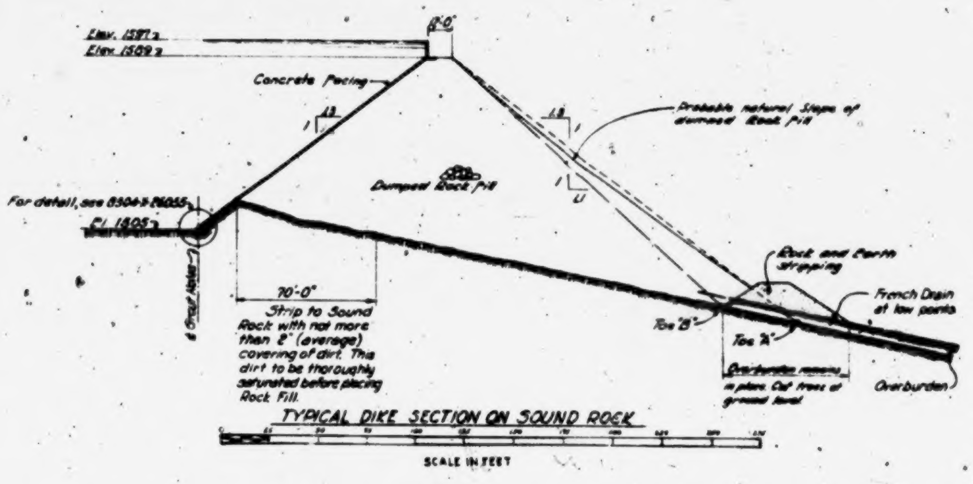
UNION ELECTRIC COMPANY

By
Vice President

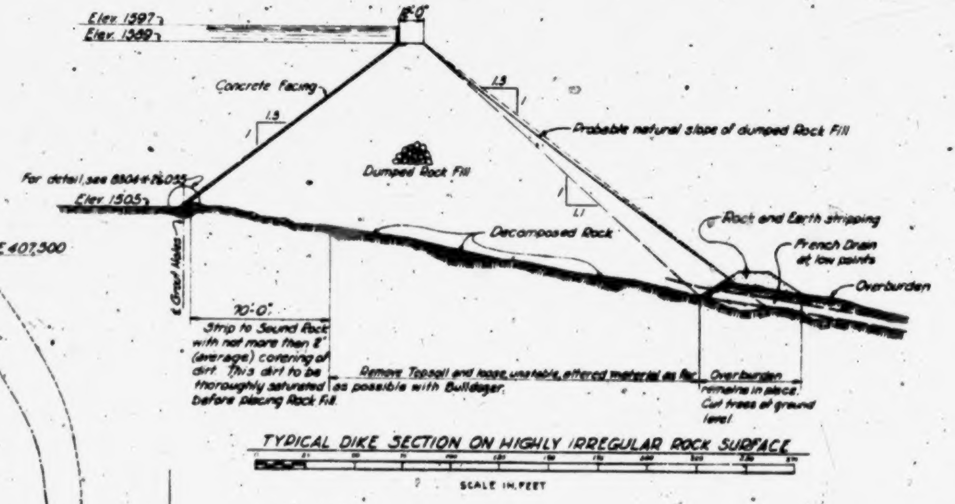
UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT K

---


Toe of Slope Line "A"
Toe of Slope Line "B"
E 408,500
413.5' R
E 408,000
Elevation of Floor 1505
E 407,500
563.5' R
466.5' R
293.5' R
℄ Shaft
N 619,184.74
E 406,772.64
E 407,000
E 406,500
E 406,000
Probable natural slope of dumped Rock Fill
18" Pervious layer, per specs
French Drain
IT ON N.W. SIDE (N620,000-E407,000)
FEET
PLAN
SCALE IN FEET


Elev. 1597
Elev. 1589
12'-0"
Concrete Facing
1.3
1
Probable natural Slope of dumped Rock Fill
1.1
Dumped Rock Fill
For detail, see 8304-B-26055
El. 1505
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Rock and Earth stripping
French Drain at low points
Toe "B"
Toe "A"
Overburden remains in place. Cut trees at ground level
Overburden
SCALE IN FEET

TYPICAL DIKE SECTION ON SOUND ROCK


Elev. 1597
Elev. 1589
12'-0"
Concrete Facing
1.3
1
Probable natural slope of dumped Rock Fill
Dumped Rock Fill
1.1
For detail, see 8304-B-26055
Elev. 1505
Decomposed Rock
Rock and Earth stripping
French Drain at low points
Overburden
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Remove Topsoil and loose, unstable, altered material as far as possible with Bulldozer.
Overburden remains in place. Cut trees at ground level.
SCALE IN FEET

TYPICAL DIKE SECTION ON HIGHLY IRREGULAR ROCK SURFACE

UPPER POOL
PLAN and SECTIONS

This amended exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960
Dated at St. Louis, Missouri the 6th day of December 1960

UNION ELECTRIC COMPANY

By
Vice President

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT L
SHEET 2

[248] Before the Federal Power Commission

*Item M*

National Forest Reservation Commission, Washington, D.C.

The Secretary of the Army, President. The Secretary of the Interior. The Secretary of Agriculture. Hon. Francis Case, U.S.S. Hon. John C. Stennis, U.S.S. Hon. William M. Colmer, M.C. Hon. Hamer H. Budge, M.C. Office: Room 4210, South Building, U.S. Department of Agriculture, REpublic 7–4142. Branch 5687

N. F. R. C.

*January 26, 1961.*

Mr. J. H. GUTRIDE, *Secretary,*
*Federal Power Commission,*
*Washington 25, D.C.*

DEAR MR. GUTRIDE: I am pleased to send to you herewith a copy of each of the documents requested in your letter of January 24—Federal Power Commission Docket E–6927.

The minutes of the August 30, 1933, meeting of the National Forest Reservation Commission covered a number of other matters beside the approval of the establishment of the Clark Purchase Unit in Missouri. I am, therefore, sending copy of only those parts of the minutes pertaining to the Clark unit.

If I can be of further assistance, please let me know.

Sincerely yours,

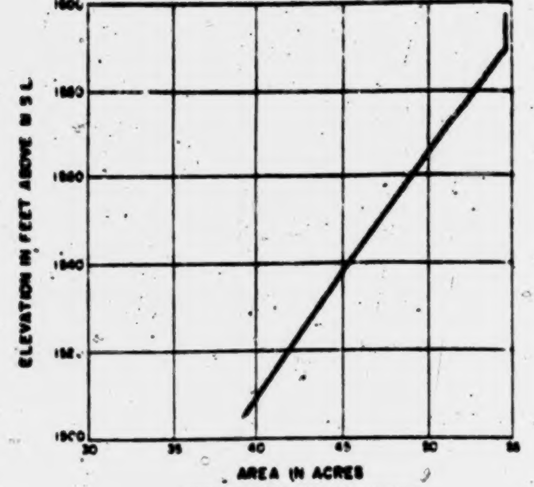
A. G. LINDH, *Secretary.*

---

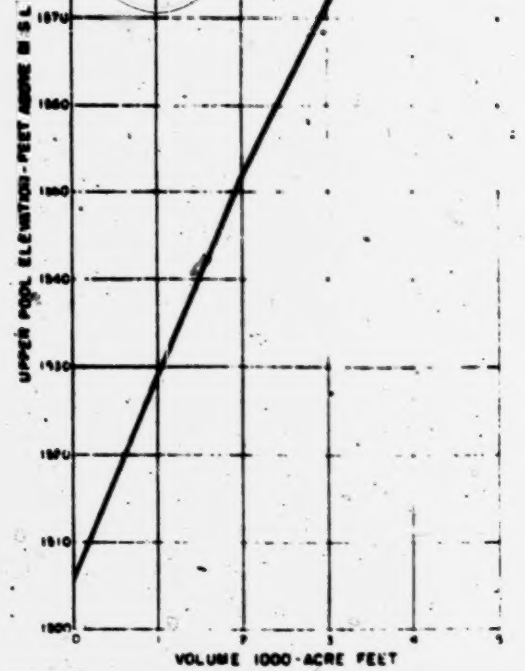
[249] DEPARTMENT OF AGRICULTURE,
WASHINGTON, *Aug. 29, 1933.*

THE PRESIDENT,
NATIONAL FOREST RESERVATION COMMISSION.

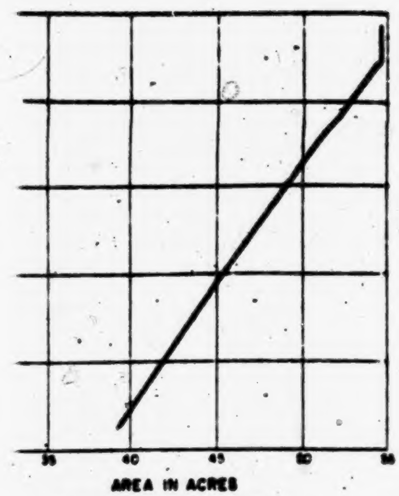
DEAR MR. SECRETARY: Section 6 of the Act approved March 1, 1911 (36 Stat. 961), as amended by Section 6 of the Act approved June 7, 1924 (43 Stat. 653), authorizes and directs the Secretary of Agriculture to examine, locate and recommend for purchase such forested, cut-over or denuded lands within the watersheds of navigable streams as in his judgment may be necessary to the regulation of the flow of navigable streams or for the production of timber.



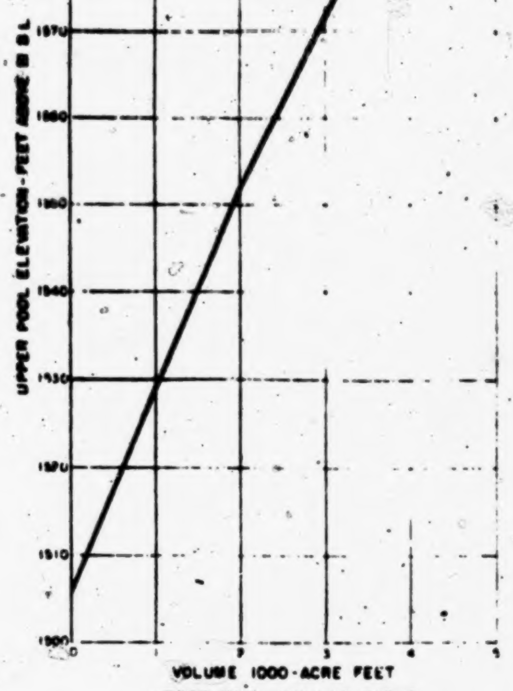
UPPER POOL AREA CURVE



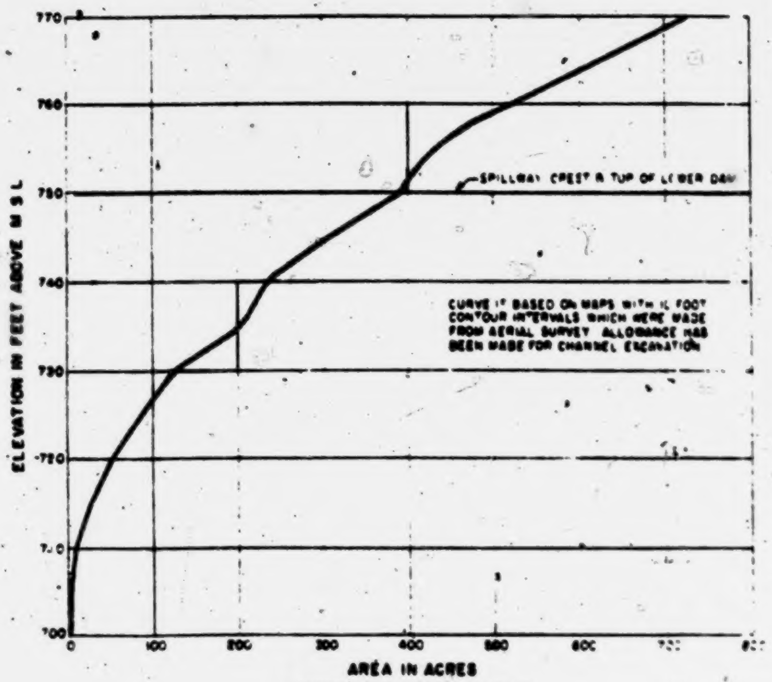
UPPER POOL VOLUME CURVE



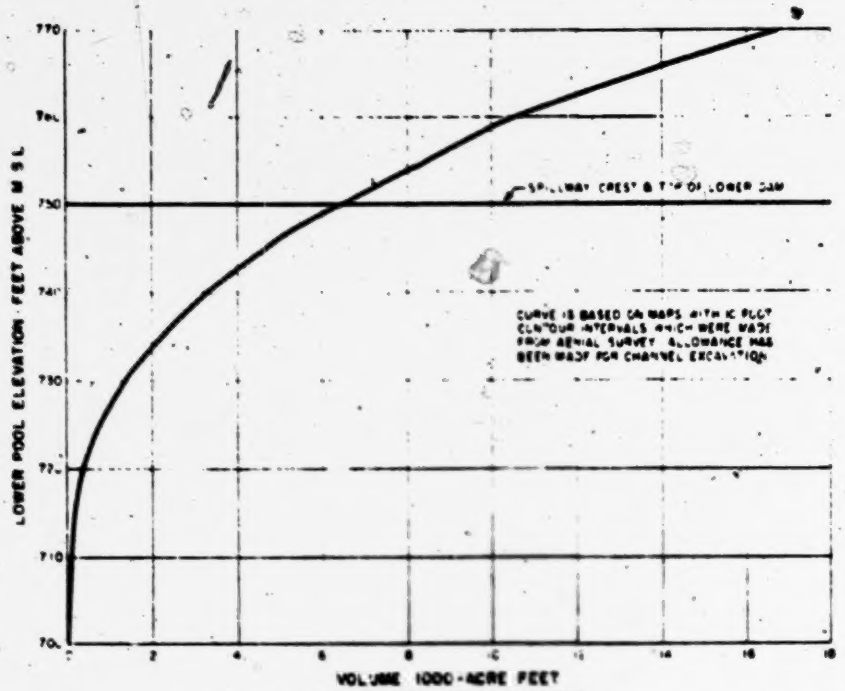
UPPER POOL AREA CURVE



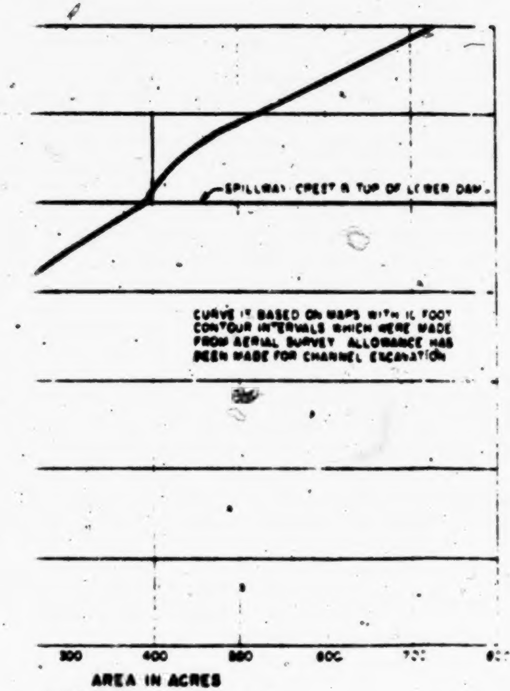
UPPER POOL VOLUME CURVE



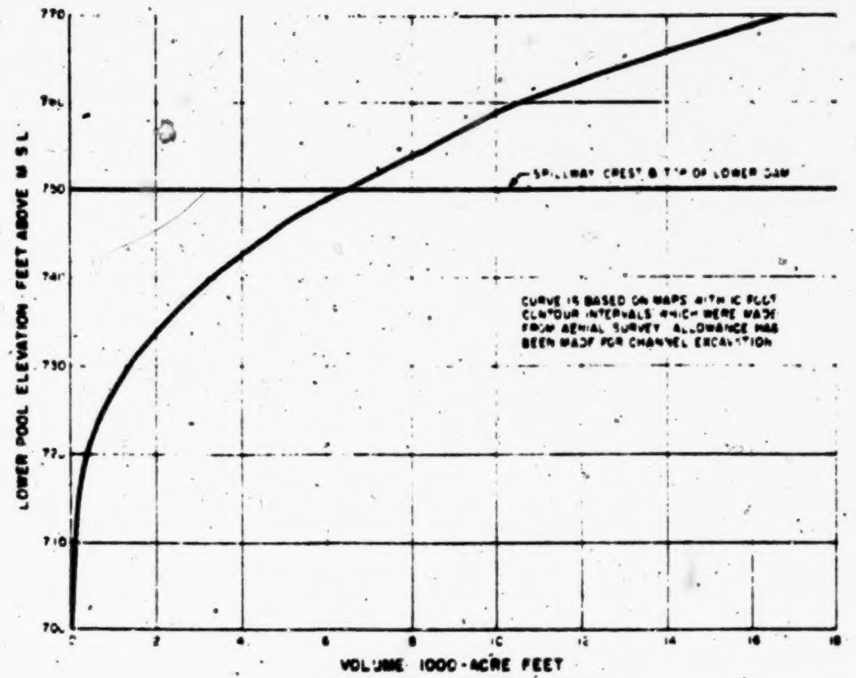
LOWER POOL AREA CURVE



LOWER POOL VOLUME CURVE



LOWER POOL AREA CURVE



LOWER POOL VOLUME CURVE

This exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960.
Dated at St Louis, Missouri the 6th day of December 1960

UNION ELECTRIC COMPANY

By
Vice President

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT K
SHEET 2

The Chief of the Forest Service of this Department has caused examinations to be made of areas suitable for addition to existing National Forest purchase units or for establishment as new and separate purchase units. The areas so examined, and the physical, economic, social and administrative facts related thereto are briefly described on the sheets accompanying this letter which summarize and condense for convenient reference and study the facts reported by the field officers who examined the areas.

While in practically every instance the reforestation of the lands described in the reports will favorably influence the flow of navigable streams, the areas listed on the attached sheets, with one exception, primarily are valuable for the production of timber and their acquisition and management by the Federal Government would mainly have that objective in mind. The sole exception would be the Holly Springs Unit in northern Mississippi, where erosion control and streamflow stabilization through the reforestation of denuded slopes would be the dominant purpose.

On the basis of the facts determined by the field officers of this Department, it is my judgment that the described areas are suitable for the production of timber and that the ownership and control of said areas by the United States would promote the production of timber thereon. [250] My conclusion, therefore, is that the purchase within the described areas of all lands chiefly valuable for timber production would be in accord with the provisions of the Weeks and Clarke-McNary Laws, and with the findings of the report which this Department recently submitted in response to Senate Resolution 175, 72nd Congress.

Very sincerely yours.

H. A. WALLACE, *Secretary.*

(Enclosures)

### Minutes of the Meeting of the
### National Forest Reservation Commission
### Wednesday, August 30, 1933.

Present: Members: Secretary Dern, Chairman, War Department. Secretary Ickes, Interior Department. Secretary Wallace, Department of Agriculture. Representative Doxey of

# BEFORE THE FEDERAL POWER COMMISSION

## Before the Federal Power Commission

*Exhibit 10*

[Copy]

ENGCW–E *18 August 1960.*

CHAIRMAN,
FEDERAL POWER COMMISSION,
*Washington 25, D.C.*

DEAR MR. CHAIRMAN: The Commission's letter dated 30 June 1960 requested comments and recommendations in regard to the application for license filed by Union Electric Company for proposed hydroelectric project No. 2277 to be located on East Fork of Black River in Missouri.

The proposed dam would be located approximately 15 miles upstream from the upper limit of the Corps of Engineers' Clearwater Reservoir project and about 85 miles above the head of an authorized navigation project (inactive) on the Black River. Construction and operation of the applicant's project would have no appreciable effect on the Clearwater Reservoir project or navigation on the Black River.

The plans of the structures are satisfactory insofar as the interests of navigation are concerned. Terms and conditions for insertion in the license in the interest of navigation are not considered necessary.

One copy of the application is returned as requested.

Sincerely yours,

(S) Robert M. Tarbox,
ROBERT M. TARBOX,
Colonel, Corps of Engineers,
Assistant Director of Civil Works for Southwestern Divisions.

1 Encl.
Cy of Appln for License, Project No. 2277.

[241] Before the Federal Power Commission

*Exhibit 12 A*

Address All Communications to the Secretary

Federal Power Commission,
Washington 25, *Sep. 13, 1960.*

Project No. 2277—Missouri
Union Electric Company
*315 North Twelfth Boulevard*
*St. Louis 1, Missouri*

Attention: E. J. Shapiro, Secretary

Gentlemen: Enclosed is a copy of a letter dated September 2, 1960, received from the Department of the Interior, which contains comments and recommendations on your application for license for the proposed Taum Sauk Project No. 2277.

It is requested that you submit such comments on Interior's recommendations as you may deem desirable.

Very truly yours,

J. H. Gutride, *Secretary.*

Enclosure No. 96248
Copy of ltr dtd 9/2/60

---

Before the Federal Power Commission

*Exhibit 12 B*

United States Department of the Interior,
Office of the Secretary,
Washington 25, D.C. *Sep. 2, 1960.*

Dear Mr. Kuykendall: This is in reply to your letter of June 30 transmitting for our comments application of the Union Electric Com- [242] pany for license for proposed hydroelectric project No. 2277 which would be located in Reynolds Iron, Washington and St. Francois Counties, Missouri.

We are informed by the U.S. Fish and Wildlife Service that the project would impound a little less than two miles of the East Fork of Black River and about a mile of Taum Sauk Creek. The East Fork, although not a high quality smallmouth bass stream, is one of the better streams in that area. The water is clear and the stream supports a sucker sunfish smallmouth bass fishery. There is a permanent flow in the East Fork in the project vicinity with minimum flows of approximately 10 c. f. s. Taum Sauk Creek is an intermittent tributary.

About two miles of stream fishing in the East Fork would be lost as a result of impoundment. How much of this loss might be offset by the fishery in the proposed impoundment is difficult to determine because of the anticipated extreme daily fluctuation resulting from the unusual operation of this project. The impoundment will, however, provide some fishing and reasonable public access for fishing purposes should be permitted.

There will be little adverse effect on the East Fork above the proposed impoundment. Satisfactory brood stock and spawning areas will remain following project construction to support the fishery above the dam. No fish passage facilities are recommended.

There are approximately five miles of the East Fork between the dam site and the confluence of East Fork with the main stem of the Black River. This stretch of stream is the most important reach of the East Fork from the fishery standpoint. It is larger, has a more stable flow, furnishes the best aquatic habitat, and is most extensively used by fishermen.

It is important, in the interest of the fishery, that adequate flows be maintained in this reach below the proposed dam. This objective would be met if a continuous downstream discharge equal to the flow into the impoundment from the stream above were provided.

[243] It is requested that in addition to a standard L-form access stipulation the following provisions be included in any license issued for this project.

> 1. The Licensee shall comply with such reasonable modifications of project structures and operation as may be hereafter prescribed by the Federal Power Commission upon the recommendation of the Secretary of the Interior and the Missouri Conservation Commission.

2. The Licensee shall, after the initial filling of the lower pool, maintain a continuous flow through the dam equal to the flow into the lower pool from the streams above.

3. The Licensee shall cooperate within reasonable limits with the Bureau of Sport Fisheries and Wildlife of the United States Fish and Wildlife Service and the Missouri Conservation Commission, in the development of plans for the conservation and development of the fish and wildlife resources involved.

Sincerely yours,

(S) **Fred G. Aandahl,**
*Secretary of the Interior.*

**Honorable Jerome K. Kuykendall,**
*Chairman, Federal Power Commission,*
*Washington 25, D.C.*

---

[244] Before the Federal Power Commission

*Exhibit 13*

Union Electric Company,
*315 North Twelfth Boulevard,*
Saint Louis 1, Missouri, *September 19, 1960.*

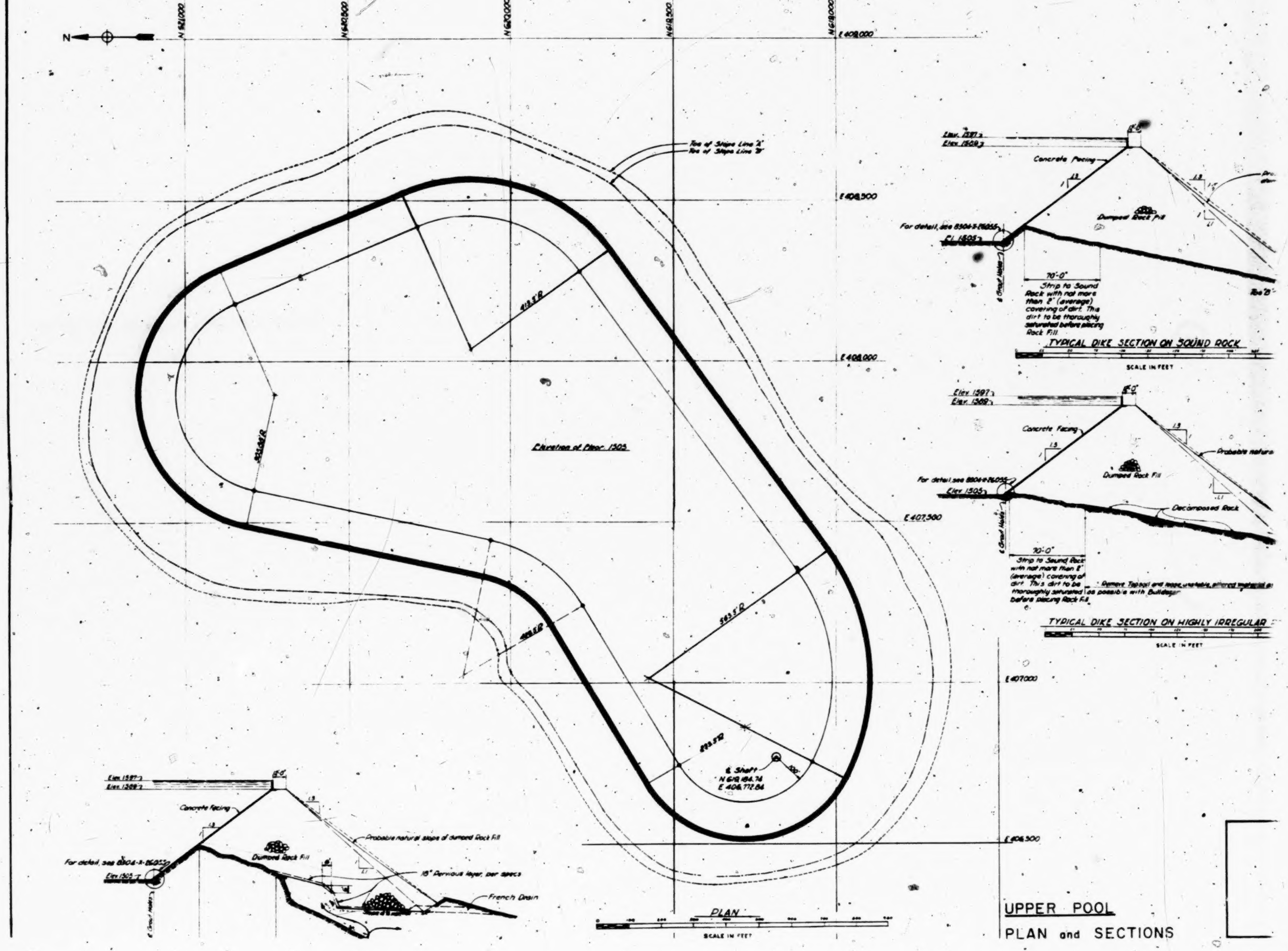
Federal Power Commission
*Washington 25, D.C.*

Attention: Mr. J. H. Gutride, Secretary

Re: Union Electric Company, Project No. 2277

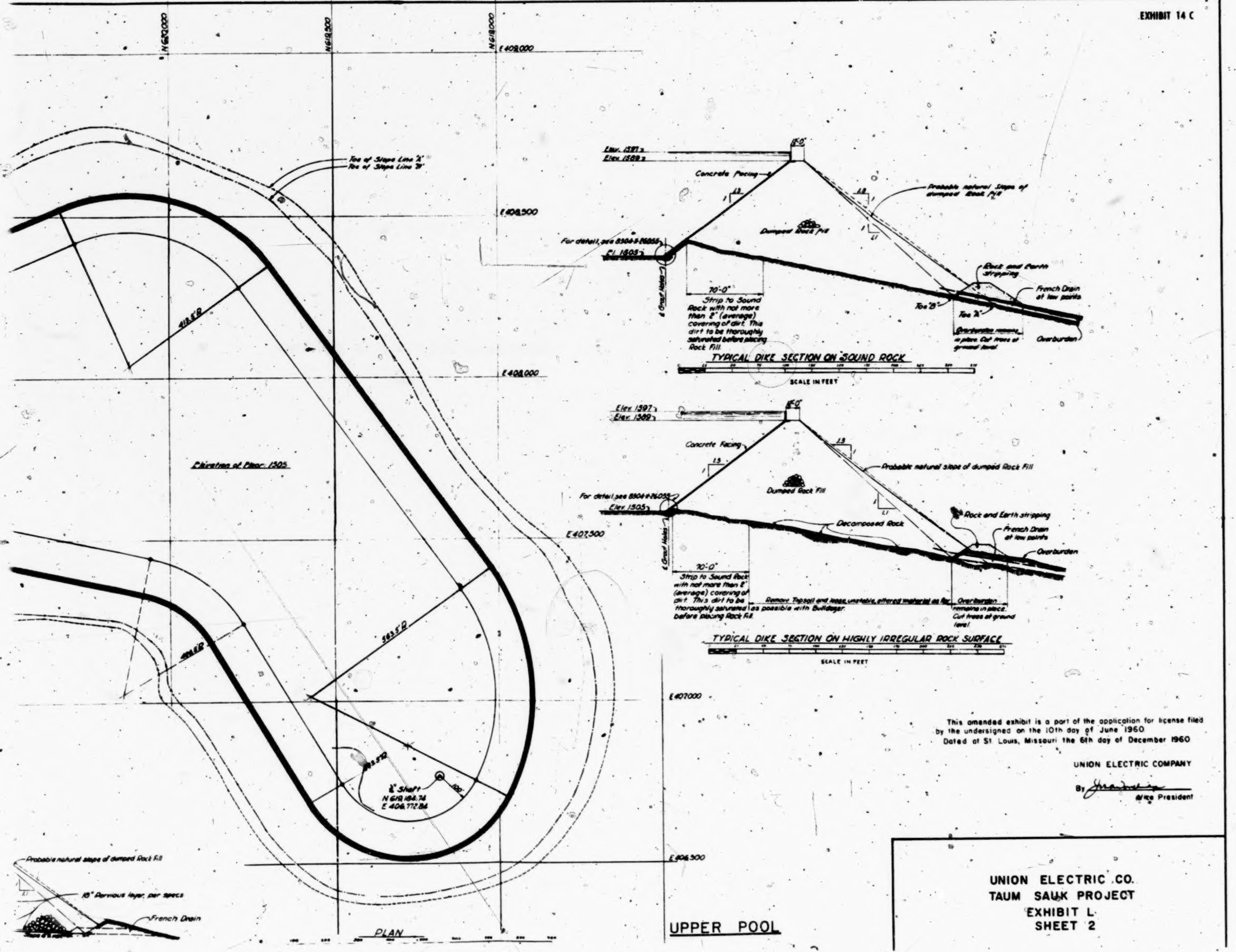
Gentlemen: This letter is in response to your request of September 13, 1960, that we comment upon the recommendations of the Department of the Interior included in that department's letter to you of September 2, 1960. This matter is the subject of an agreement by and between Union Electric Company and the Missouri Conservation Commission. Union Electric Company has agreed, (1) to maintain during periods of normal operation a flow through the dam approximately equal to the flow into the lower pool from the feeding streams, and (2) that we are favorably inclined toward public fishing

EXHIBIT 14 C


N
N 621,000
N 620,500
N 620,000
N 619,500
N 619,000
E 409,000
E 408,500
E 408,000
E 407,500
E 407,000
E 406,500
Toe of Slope Line "A"
Toe of Slope Line "B"
Elevation of Floor 1505
415.5' R
563.5' R
455.5' R
893.5' R
℄ Shaft
N 619,184.74
E 406,772.84
PLAN
SCALE IN FEET
Elev. 1597
Elev. 1589
15'-0"
Concrete Facing
Dumped Rock Fill
For detail, see 8304-X-26055
El. 1505
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Toe "B"
TYPICAL DIKE SECTION ON SOUND ROCK
SCALE IN FEET
Probable natural
Decomposed Rock
Remove Topsoil and loose, unstable, altered material as far as possible with Bulldozer.
TYPICAL DIKE SECTION ON HIGHLY IRREGULAR
SCALE IN FEET
Probable natural slope of dumped Rock Fill
18" Pervious layer, per specs
French Drain
1.3
1.1
1

UPPER POOL

PLAN and SECTIONS


N 620,000
N 619,500
N 619,000
E 409,000
E 408,500
E 408,000
E 407,500
E 407,000
E 406,500
Toe of Slope Line "A"
Toe of Slope Line "B"
Elevation of Floor 1505
415.5' R
563.5' R
455.5' R
893.5' R
℄ Shaft
N 619,184.74
E 406,772.84
PLAN
Elev. 1597
Elev. 1589
15'-0"
Concrete Facing
Dumped Rock Fill
Probable natural Slope of dumped Rock Fill
For detail, see 8304-X-26055
El. 1505
℄ Grout Holes
70'-0"
Strip to Sound Rock with not more than 2" (average) covering of dirt. This dirt to be thoroughly saturated before placing Rock Fill.
Rock and Earth stripping
French Drain at low points
Toe "B"
Toe "A"
Overburden remains in place. Cut trees at ground level
Overburden
TYPICAL DIKE SECTION ON SOUND ROCK
SCALE IN FEET
Probable natural slope of dumped Rock Fill
Decomposed Rock
Remove Topsoil and loose, unstable, altered material as far as possible with Bulldozer.
TYPICAL DIKE SECTION ON HIGHLY IRREGULAR ROCK SURFACE
SCALE IN FEET
18" Pervious layer, per specs
French Drain
1.3
1.1
1

UPPER POOL

This amended exhibit is a part of the application for license filed by the undersigned on the 10th day of June 1960
Dated at St. Louis, Missouri the 6th day of December 1960

UNION ELECTRIC COMPANY

By
Vice President

UNION ELECTRIC CO.
TAUM SAUK PROJECT
EXHIBIT L
SHEET 2

in the lower pool if practical and possible, and that we will work with the Missouri Conservation Commission upon completion of the installation to determine the amount and type of public use that is practical and safe. In return for these conditions the Missouri Conservation Commission has determined not to require either fishways or ladders in the proposed dam or a fish hatchery, requirement that could have been imposed under The Wild Life and Forestry Law, Chapter 252, Revised Statutes of Missouri 1949.

We believe the following comments and observations are appropriate in any discussion of this problem:

First, as to the flow below the dam, we stated on page 8 of our declaration of intention, Docket No. E–6927, incorporated by reference into our license application, Project No. 2277, that we plan to maintain a flow through the sluice [245] gates in the dam, and hence downstream, equal to the flow into the pool from the streams above. We are aware of extended periods of time in recent years when the flow at the site of the proposed dam has been less than ten cubic feet per second, for example, on August 29, 1960, a reading by the U.S.G.S. showed the flow in the East Fork was only 3.19 cubic feet per second and on that date Taum Sauk Creek was completely dry. If we were to pass downstream a flow exceeding the amount of inflow, there could be a substantial effect on our storage which could jeopardize the effectiveness of the project.

Second, as to public fishing in the lower pool, we cannot say at this time exactly how the lower pool will respond to cyclical pumping and generating and we feel that it would be imprudent to agree, without restriction, to allow public fishing in this pool without being fully aware of all the hazards which may be involved. The level of the lower pool will increase or decrease approximately fifteen feet with each cycle of operation. The rate of change, when generating, will be approximately two feet per hour. With water rising at this rate, those who might be fishing in the pool, say on an island, could have difficulty in getting back to shore if they were not aware of the rise in water level. Because we do not know exactly what hazards will be encountered, we suggest that final determination of this matter be delayed until the plant is in operation.

As to the requests made by the Department of the Interior on page two of their letter, we cannot comment at this time upon the appropriateness of the addition of a "standard L-form access stipulation," or the inclusion in a license of provision No. 1 because we are not familiar with said stipulation or with the structural and operational modifications the Department of the Interior might suggest.

In view of the agreement between Union Electric Company and the Missouri Conservation Commission and the foregoing discussion, we believe provision No. 2, if such be included in a license, should read:

> The Licensee shall, after the initial filing of the lower pool, maintain during periods of normal operation a [246] flow through the dam approximately equal to the flow into the lower pool from the streams above.

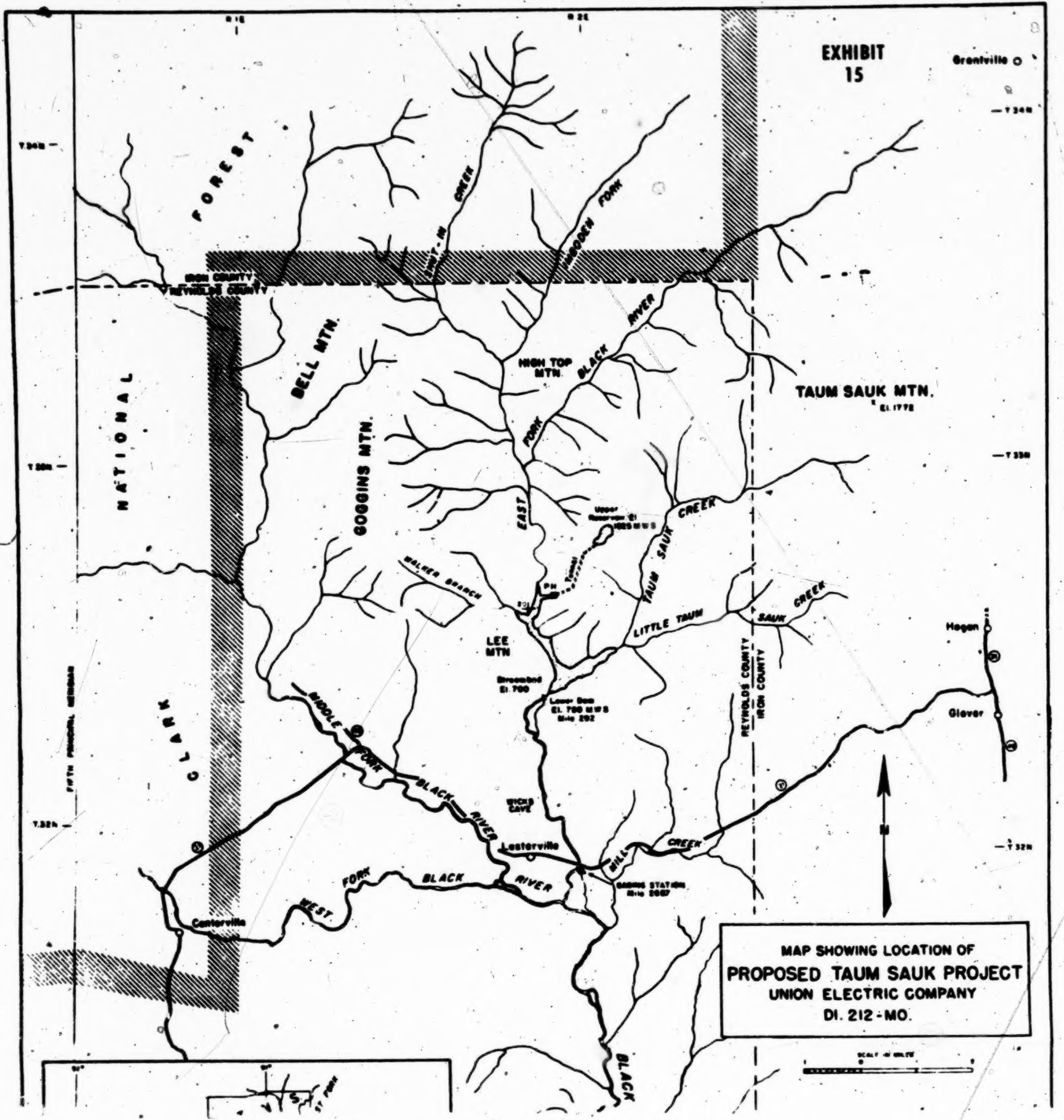
We have no objection to provision No. 3 and you may be sure that we wish to cooperate with the Bureau of Sport Fisheries and Wildlife of the United States Fish and Wildlife Service and with the Missouri Conservation Commission in the performance of their obligations to the public.

Very truly yours,

GEO. P. GAMBLE,
*Executive Vice President.*

749-114 O - 64 (Face p. 234)

**EXHIBIT 15**



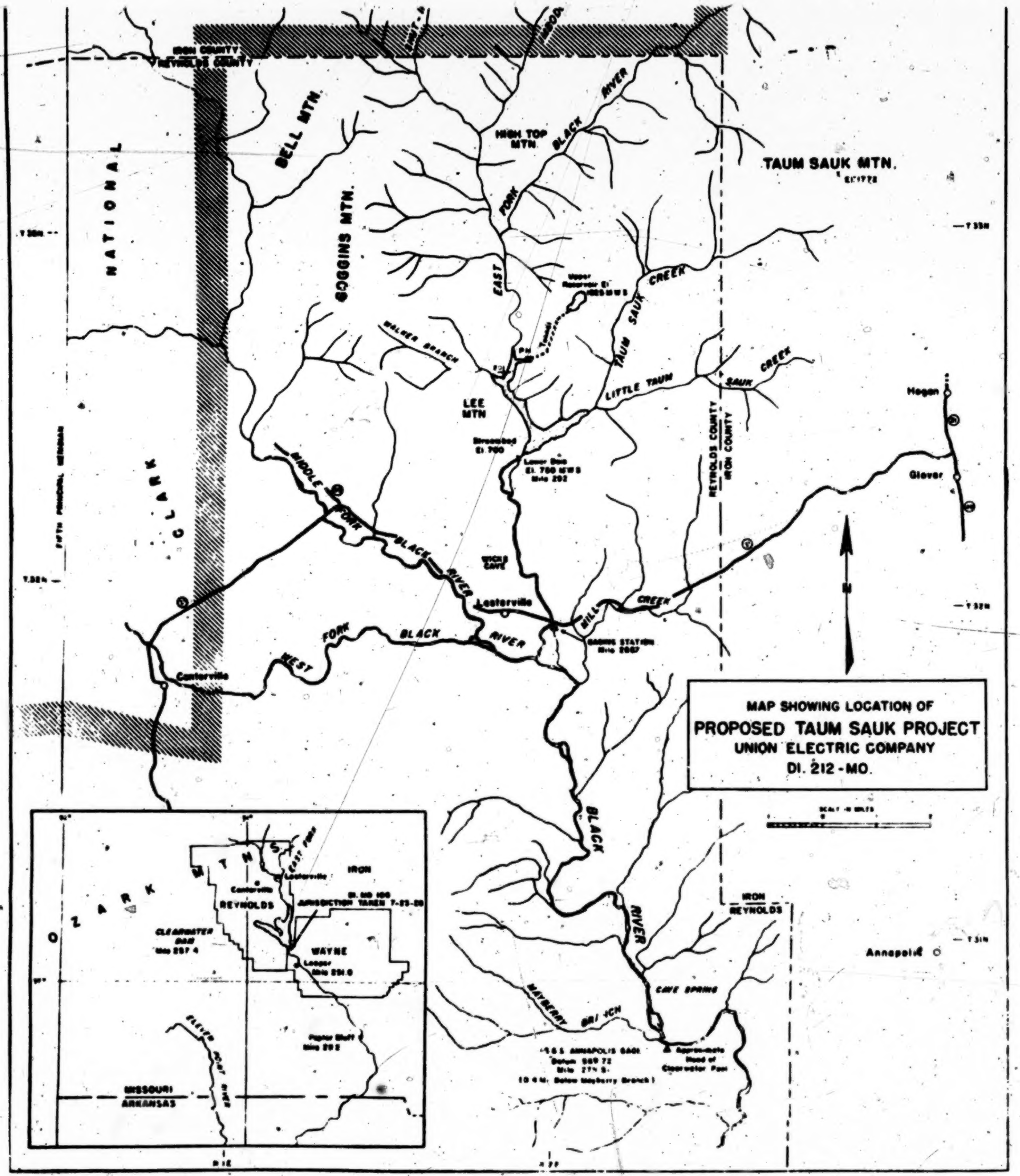
MAP SHOWING LOCATION OF

PROPOSED TAUM SAUK PROJECT

UNION ELECTRIC COMPANY

DI. 212-MO.

R 1E
R 2E
Grantville
T 34N
T 33N
T 32N
FOREST
NATIONAL
CLARK
IRON COUNTY
REYNOLDS COUNTY
SHUT-IN CREEK
IMBODEN FORK
BELL MTN.
HIGH TOP MTN.
BLACK RIVER
EAST FORK
TAUM SAUK MTN.
El. 1772
GOGGINS MTN.
Upper Reservoir El. 1525 MWS
TAUM SAUK CREEK
WALKER BRANCH
PH
LITTLE TAUM SAUK CREEK
LEE MTN
Streambed El. 700
Lower Dam El. 750 MWS Mile 292
REYNOLDS COUNTY
IRON COUNTY
Hogan
Glover
FIFTH PRINCIPAL MERIDIAN
MIDDLE FORK BLACK RIVER
WICKS CAVE
Lesterville
BILL CREEK
WEST FORK BLACK RIVER
GAGING STATION Mile 2857
Centerville
BLACK
N
SCALE IN MILES



MAP SHOWING LOCATION OF
PROPOSED TAUM SAUK PROJECT
UNION ELECTRIC COMPANY
DI. 212-MO.

IRON COUNTY
REYNOLDS COUNTY
BELL MTN.
GOGGINS MTN.
HIGH TOP MTN.
BLACK RIVER
EAST FORK
TAUM SAUK MTN.
NATIONAL
CLARK
FIFTH PRINCIPAL MERIDIAN
Upper Reservoir El.
WELKER BRANCH
TAUM SAUK CREEK
LITTLE TAUM SAUK CREEK
LEE MTN
Streambed El 700
Lower Dam El. 700 MWS Mile 282
MIDDLE FORK BLACK RIVER
WEST FORK BLACK RIVER
Lesterville
MILL CREEK
GAGING STATION
Centerville
WICKS CAVE
REYNOLDS COUNTY
IRON COUNTY
Hogan
Glover
N
T 33N
T 32N
T 31N
BLACK RIVER
CAVE SPRING
MAYBERRY BRANCH
U.S.G.S. ANNAPOLIS GAGE
Approximate Head of Clearwater Pool
IRON
REYNOLDS
Annapolis
OZARK MTNS.
EAST FORK
Centerville
Lesterville
IRON
REYNOLDS
JURISDICTION TAKEN 7-23-20
CLEARWATER DAM
WAYNE
Poplar Bluff
ELEVEN POINT RIVER
MISSOURI
ARKANSAS
R 1E
R 2E

[247]

Mississippi. Representative Clarke of New York. Mr. John E. Burch, Secretary of the Commission. Solicitor's Office: Mr. A. H. McConville, Attorney. Forest Service: Mr. Sherman, Mr. Kneipp, Mr. Kircher, Mr. Paxton, Mr. Yarnall and Mr. Neff. Others: Representative Claude V. Parsons, Illinois; Representative Jennings Randolph, West Virginia; Mr. Deck, Secretary to Representative Keller of Illinois; Mr. Julian Rothery of The International Paper Co., and Mr. Thompson of the Illinois Chamber of Commerce.

The meeting was called to order by Secretary Dern at 10 a. m.

[251] **MEMO. 1**

The minutes of the previous meeting (June 20) were Approved.

Communications from Senators Keyes and George were read, expressing their regret at being unable to attend. Senator George indicated also his disapproval of purchases in the Cumberland and Kentucky River area. This area, however, Mr. Kneipp explained, is not included in today's meeting.

**MEMO. 2**

Ratification was given to recess action approved by a majority of the members of the Commission and a rule adopted that reports on proposed units may be seen by parties having a legitimate interest, but reports on proposed purchases are confidential until after approval by the Commission.

**MEMO. 3**

A purchase program totalling 274,642 acres at a total cost of $546,660.46 at an average price of $1.99 was presented by Mr. Kneipp. The entire program was Approved. Acreages and location follow:

* * * * *

know until then that the lease had expired and that when this pioneer work was begun there was no national forest established in Mississippi. The State had an experimental station at McNeill and has cooperated with the Government in some wonderful research work there. As a Representative of the State, Mr. Doxey assured the Commission that if it develops that the

Government is being in any way imposed upon he would be the last man to favorably recommend the purchase, but he thought the Commission would find it an investment that would pay returns and be the thing to do.

A map was introduced showing the McNeill area to be about 30 miles from one proposed unit and about 3 miles [252] from a tentative unit. Mr. Clarke asked if it would not be advisable to put the money into new units instead of continuing a spread-out situation. Mr. Kneipp explained we could not then have the advantage of the previous ten years of experimentation. Secretary Dern asked if it was necessary to continue experiments on the same area and on the same trees, or whether the project could be continued in a new area. The Branch of Research, Mr. Kneipp said, believes it essential to carry on the work in the same area and that it would be a sacrifice of much accomplished in the past ten years if the area were abandoned.

Mr. Sherman said he was over this territory a number of years ago and expressed the opinion that its abandonment would entail the loss of some of the advantages of the previous experiments. New arrangements for quarters would have to be made and nothing would be saved but much lost if the area was dropped and new studies started on other land. As Mr. Doxey explained, the Government uses facilities already there and enjoys the cooperation of the State. It was Moved by Mr. Doxey that authority be given to negotiate for the purchase of this land, the actual purchase to be considered at a later meeting. Seconded by Mr. Clarke and Carried.

### MEMOS. 5 TO 9, INCL.

Approval was given to modification of prior authorizations to permit purchase of five cases subject to certain reservations and/or exceptions. The existence of these rights will not diminish the value of the property nor interfere with its use for National Forest purposes.

### MEMO. 10

Approval was given to an exchange case in the Flambeau Unit (Otto E. Doering) whereby 341.40 acres containing merchantable timber will be exchanged for 440 acres without timber. The proponent desires the 440 tract to consolidate his summer home properties. The land to be received is valued at $2,157.57 and the selected land at $641.75.

[253] MEMO. 11

Before presenting a tentative program of new units and additions to existing units Mr. Kneipp read a letter from the Secretary of Agriculture to the President of the N.F.R.C. stating that in his judgment the described lands were suitable for the production of timber; that ownership by the U.S. would promote the production of timber thereon, and that, therefore, the purchase within the described areas of all lands chiefly valuable for timber production would be in accord with the provisions of the Weeks and Clarke-McNary Laws and with the findings of the Copeland Report (S.R. 175 72nd Congress).

The location, acreage, and cost of the program of new units and additions follow: All were Approved.

### Eastern Units

| State and unit | Area to be purchased by U.S. | | |
|---|---|---|---|
| | Acres | Average cost per acre | Total cost |
| Alabama, addition to Alabama N.F | 33,000 | $3.00 | $99,000 |
| Arkansas, addition to Ozark N.F | 225,000 | 3.00 | 675,000 |
| Florida, Apalachicola Purchase Unit | 250,000 | 3.00 | 750,000 |
| Louisiana: | | | |
| Addition to Catahoula Unit | 75,000 | 2.50 | 187,500 |
| Modification of Boundary Vernon Unit | 75,000 | 2.00 | 150,000 |
| Mississippi: | | | |
| Leaf River Purchase Unit | 200,000 | 2.25 | 450,000 |
| Chickasawhay Purchase Unit | 100,000 | 2.00 | 200,000 |
| Biloxi Purchase Unit | 250,000 | 4.00 | 1,000,000 |
| Holly Springs Purchase Unit | 200,000 | 3.00 | 600,000 |
| West Virginia, addition to Monongahela | 500,000 | 3.00 | 1,500,000 |
| Puerto Rico, addition to Luquillo | 50,000 | 10.00 | 500,000 |
| Total, Eastern Units | 1,958,000 | 3.63 | 7,111,500 |

[254]

### Lake States Units

| | | | |
|---|---|---|---|
| Michigan: | | | |
| Marquette Addition | 200,000 | $1.55 | $310,000 |
| Hiawatha Addition | 286,000 | 1.60 | 457,600 |
| Ottawa Addition | 420,000 | 2.10 | 882,000 |
| Manistee Unit | 390,000 | 2.00 | 780,000 |
| Minnesota: | | | |
| Superior Addition | 96,000 | 2.00 | 192,000 |
| Mesaba Addition | 90,000 | 2.00 | 180,000 |
| Chippewa Unit | 575,000 | 2.00 | 1,150,000 |

**Lake States Units—Continued**

| State and unit | Area to be purchased by U.S. | | |
|---|---|---|---|
| | Acres | Average cost per acre | Total cost |
| Illinois: | | | |
| Illini Unit | 262,000 | 4.00 | 1,048,000 |
| Shawnee Unit | 248,000 | 4.00 | 992,000 |
| Missouri: | | | |
| Clark Unit | 125,000 | 3.50 | 4,375,000 |
| Fristoe Unit | 100,000 | 3.50 | 350,000 |
| Gasconade Unit | 125,000 | 3.50 | 437,500 |
| Pond Fork Unit | 100,000 | 3.50 | 350,000 |
| Total, Lake States Units | 3,147,445 | 2.56 | 8,072,800 |

Mr. Kneipp explained that when the President first allotted $20,000,000, its expenditure was to be confined to the 42 previously established purchase units with the idea of substantially completing them. Later, the President modified the order to authorize purchases in such other units as the Commission might approve. The Forest Service has made a study of the situation, with several things in mind, among them being the availability of lands for winter work of the C.C.C. and continued availability as a source of permanent local employment. Another important factor is that private enterprise offers no adequate promise of protection to the Nation's watersheds or perpetuation of its timber resources, and that these important public functions, if performed at all, largely must be performed by the Federal Government.

Photographs illustrating conditions prevailing in the various units were shown.

The establishment of the above units was Approved, thus indicating the Commission's willingness to consider purchases in those units. Discussions occurred in the consideration of the following units:

[255] *Mississippi;*

Mr. Doxey described conditions to be found in four proposed units in Mississippi. The northern unit, the Holly Springs unit, he said was different from the other units. The erosion problem is tremendous in this section of northern Mississippi where a great volume of water arises. There were pine and hardwoods, Mr. Doxey said, but the country is now stripped.

The C.C.C. camps have gone in and have done wonderful work in erosion control by engineering work and by setting out locust trees, solving not only a reforestation problem, but a flood control problem as well. He had been down there recently, he continued, and felt that the condition warranted action by the National Government and that from such action there will be great returns for the efforts put forth. The land is there available for Federal acquisition and management and it is felt that this program will not only meet with the Commission's hearty approval, but when carried out will be something that the Government has done for that section of the country that there is no way to place a value upon. The program presented with reference to Mississippi is one that, in his opinion, would have a far-reaching effect and about which the Forest Service and the Department of Agriculture have a general idea, but for which information would be developed by further investigations.

*West Virginia:*

Mr. Kneipp stated that in studying this unit, the Forest Service had examined a million acre area, from which it had selected 700,000 acres, within which it proposed the purchase of 500,000 acres; of which about 35,000 acres bears timber of commercial character. There had been some differences of opinion as to which 700,000 acres should have been designated. Secretary Dern asked whether this did not involve the area in which Colonel Howe was interested and Mr. Kneipp said it did. Secretary Ickes moved that the entire million acres, including the 24,000 acres in which Colonel Howe was interested, be approved, leaving for later action the selection of the 500,000 acres to be purchased. There were no objections and the Motion Carried.

[256] It was Moved and Seconded that action be deferred on the Middlebury College tract. Motion Carried.

Meeting adjourned.

JOHN E. BURCH,
*Secretary to the Commission.*

Approved:

GEO. H. BROWN,
*September 15, 1933.*

FOR BOU[illegible]ES OF NEW NATIONAL FOREST PURCHAS
ADI[illegible]IONS TO EXISTING UNITS - SEE COMMISSIO

L
Purchase, R-9.

TENTATIVE PROGRAM OF PROPOSED NEW NATIONAL FOREST PURCHASE UNITS A[illegible]
TO EXISTING UNITS.

SHEET A - PHYSICAL [illegible] FINANCIAL ASPECTS.

| STATE AND UNIT | COUNTIES IN WHICH UNIT IS SITUATED. | NAVIGABLE STREAMS INTO WHICH UNIT DRAINS. | PRIMARY PURPOSE FOR WHICH UNIT IS TO BE ESTABLISHED. | GROSS AREA OF PROPOSED UNIT | MAJOR SPECIES OF TIMBER PRODUCED ON UNIT | COVER CO[illegible] | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Purchasable | Timber of Commercial Size | Cut |
| MICHIGAN | | | | | | | | |
| MARQUETTE ADDITION | Chippewa, Mackinac | Carp, Pine & Brevoort Rivers | Timber production, erosion control, unemployment relief, demonstration of good forest management practice. | 215,753 | Maple, birch, elm, aspen, hemlock, white Norway and jack pine | 15,753 | -- | 13 |
| HIAWATHA ADDITION | Alger, Schoolcraft | Sturgeon, Whitefish, Fishdam, Iron, Indian, Mosquito, Miners AuTrain & Manistique Rivers. | Same as Above. | [illegible]078 | Maple, ash, birch, basswood, elm, heml[illegible] white spruce, be[illegible], white, Norway jack pine. | 62,078 | 6,28[illegible] | |
| OTTAWA ADDITION (Upper Mich. Branch Lake States Forest Experiment Sta.) | Houghton, Baraga, Iron, Gogebic, Ontonagon, Marquette. | Ontonagon, Sturgeon, Iron, Paint, Fire Steele, Menominee. | Timber Production | 464,435 | Same as above. | 44,435 | 75,000 | 17 |
| Hiawatha | | Whitefish River, drains into Lake Michigan; Laughing Fish Creek drains into Lake Superior. | Demonstration of good forest management practice. Erosion control. | 5,440 | Hard maple, yellow birch, hemlock, white and black spruce, white pine, basswood, elm and cedar. | None | 4,740 | |
| MANISTEE UNIT-New. | Mason, Lake, Manistee & Wexford. | Manistee and Little Manistee Rivers. | Timber production, prevention of runoff; Land Use Policy and Demonstrational Value. | 459,120 | Norway pine, maple, hemlock, beech, Scrub oak, jack pine | 39,000 | 3,000 | |
| HURON - ADDITION TO FEAL NURSERY | Iosco | Lake Huron | Additional nursery production; 7 million trees per year. | 11 | -- | -- | -- | |
| TOTALS FOR STATE OF MICHIGAN | | | | 1,482,637 | | 161,266 | 89,020 | |
| MINNESOTA | | | | | | | | |
| SUPERIOR - ADDITION | Cook | East portion Pidgeon River & Lake Superior; West portion Hudson Bay. | Timber production, recreation, erosion control and water power. | 98,424 | Jack, Norway and white pine; spruce, aspen and white birch. | 2,424 | 46,000 | |
| MESABA - ADDITION | St. Louis | Bulk of area is on Rainey River drainage, which drains into Hudson Bay. Remainder is on St. Louis watershed (navigable near mouth) which flows into Lake Superior. | Timber production, erosion control, protection of watersheds of navigable streams. | 102,000 | [illegible]k, Norway and white pine, spruce, cedar, tamarack, ash, aspen and white birch. | 10,200 | 3,000 | 4 |
| CHIPPEWA UNIT-NEW | Itasca, Beltrami and Cass | All except small portion is on headwaters of Mississippi River; remainder is on Hudson Bay Drainage. | Timber production, flood and erosion control, protection of navigable streams and recreation. | 675,000 | Norway, jack and white pine, spruce, cedar, tamarack, ash aspen, and white birch. | 100,000 | 45,000 | |
| TOTALS FOR STATE OF MINNESOTA | | | | 875,424 | | 112,624 | 94,000 | 37 |
| ILLINOIS | Jackson, Union and | [illegible] | Prevention of ero- | | (White oak, black oak | | | |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  |  |  | unemployment relief, demonstration of good forest management practice. |  | [illegible] Norway and jack pine |  | — | 1 |
| HIAWATHA ADDITION | Alger, Schoolcraft | Sturgeon, Whitefish, Fishdam, Iron, Indian, Mosquito, Miners, AuTrain & Manistique Rivers. | Same as Above. | [illegible]78 | Maple, ash, birch, basswood, elm, hem[illegible] white spruce, be[illegible], white, Norway jack pine. | 82,078 | 6,20 |  |
| OTTAWA ADDITION (Upper Mich. Branch Lake States Forest Experiment Sta.) | Houghton, Baraga, Iron, Gogebic, Ontonagon, Marquette. | Ontonagon, Sturgeon, Iron, Paint, Fire Steele, Menominee. | Timber Production | 464,435 | Same as above. | 44,435 | 70,000 | 1 |
|  |  | Whitefish River, drains into Lake Michigan; Laughing Fish Creek drains into Lake Superior. | Demonstration of good forest management practice. Erosion control. | 5,440 | Hard maple, yellow birch, hemlock, white and black spruce, white pine, basswood, elm and cedar. | None | 4,740 |  |
| MANISTEE UNIT-New. | Mason, Lake, Manistee & Wexford. | Manistee and Little Manistee Rivers. | Timber production, prevention of runoff; Land Use Policy and Demonstrational Value. | 469,120 | Norway pine, maple, hemlock, beech, Scrub oak, jack pine | 39,000 | 3,000 | 6 |
| HURON - ADDITION TO F[illegible]AL NURSERY | Iosco | Lake Huron | Additional nursery production; 7 million trees per year. | 11 | — | — | — |  |
| TOTALS FOR STATE OF MICHIGAN |  |  |  | 1,482,637 |  | 161,266 | 69,030 | 5 |
| **MINNESOTA** SUPERIOR -ADDITION | Cook | East portion Pigeon River & Lake Superior; West portion Hudson Bay. | Timber production, recreation, erosion control and water power. | 98,424 | Jack, Norway and white pine; spruce, aspen and white birch. | 2,424 | 46,000 | 2 |
| MESABA - ADDITION | St. Louis | Bulk of area is on Rainey River drainage, which drains into Hudson Bay. Remainder is on St.Louis watershed (navigable near mouth) which flows into Lake Superior. | Timber production, erosion control, protection of watersheds of navigable streams. | 102,000 | [illegible]k, Norway and white pine, spruce, cedar, tamarack, ash, aspen and white birch. | 10,200 | 3,000 | 4 |
| CHIPPEWA UNIT-NEW | Itasca, Beltrami [illegible] Cass | All except small portion is on headwaters of Mississippi River; remainder is on Hudson Bay Drainage. | Timber production, flood and erosion control, protection of navigable streams and recreation. | 675,000 | Norway, jack and white pine, spruce, cedar, tamarack, ash, aspen, and white birch. | 100,000 | 45,000 | 30 |
| TOTALS FOR STATE OF MINNESOTA |  |  |  | 875,424 |  | 112,624 | 94,000 | 37 |
| **ILLINOIS** ILLINI UNIT - New | Jackson, Union and Alexander. | Mississippi River | Prevention of erosion, timber production & demonstrational value, flood control of Miss. River. | 307,840 | (White oak, black oak (hickory, beech, maple (elm, ash, black walnut, red oak, basswood (black gum, honey locust, willow, cottonwood, red gum, hackberry, pecan, sycamore (catalpa, cypress. | 46,000 | 3,000 | 14 |
| SHAWNEE UNIT - New | Gallatin, Hardin, Pope and Saline. | Ohio River | Same as above | 291,392 |  | 43,300 | 1,300 | 10 |
| TOTALS FOR STATE OF ILLINOIS |  |  |  | 599,232 |  | 88,300 | 4,[illegible] | 27 |
| **MISSOURI** CLARK UNIT - New | Washington, Crawford, Dent, Iron & Reynolds | White River to Missouri | Production of timber, erosion control, production of forage, prevention of runoff, demonstrational areas, stabilisation of employment, flood control). | 147,000 | Red oak, white oak, hickory, walnut, ash, ironwood, elm, cedar, sycamore, butternut, maple and short-leaf pine. | 22,000 | 7,[illegible] | 9 |
| FRISTOE UNIT-New | Carter, Shannon, Oregon and Ripley. | Current-Eleven Point, White to Mississippi |  | 117,600 |  | 17,600 | 6,000 | 7 |
| GASCONADE UNIT-New | Phelps, Pulaski, Laclede, Wright and Texas. | Gasconade to Missouri |  | 147,000 |  | 22,000 | 7,400 | 9 |
| ~~[illegible] UNIT - New~~ | Ste. Genevieve, St. Francois, Madison, Pellinger & Perry | ~~Whitewater to White, to Miss. Also Saline River to Miss.~~ | Same as above. | 147,000 | Same as above. | 22,000 | 7,400 |  |
| POND FORK UNIT-New | Douglas, Christian, Taney and Ozark. | White River to Mississippi | Same as above. | 117,600 | Same as above. | 17,600 | 6,000 | 7 |
| TOTALS FOR STATE OF MISSOURI |  |  |  | 676,200 |  | 101,200 | 34,200 | 4 |
| GRAND TOTALS, REGION 9 |  |  |  | 3,633,693 |  | 453,390 | 221,520 | 16 |

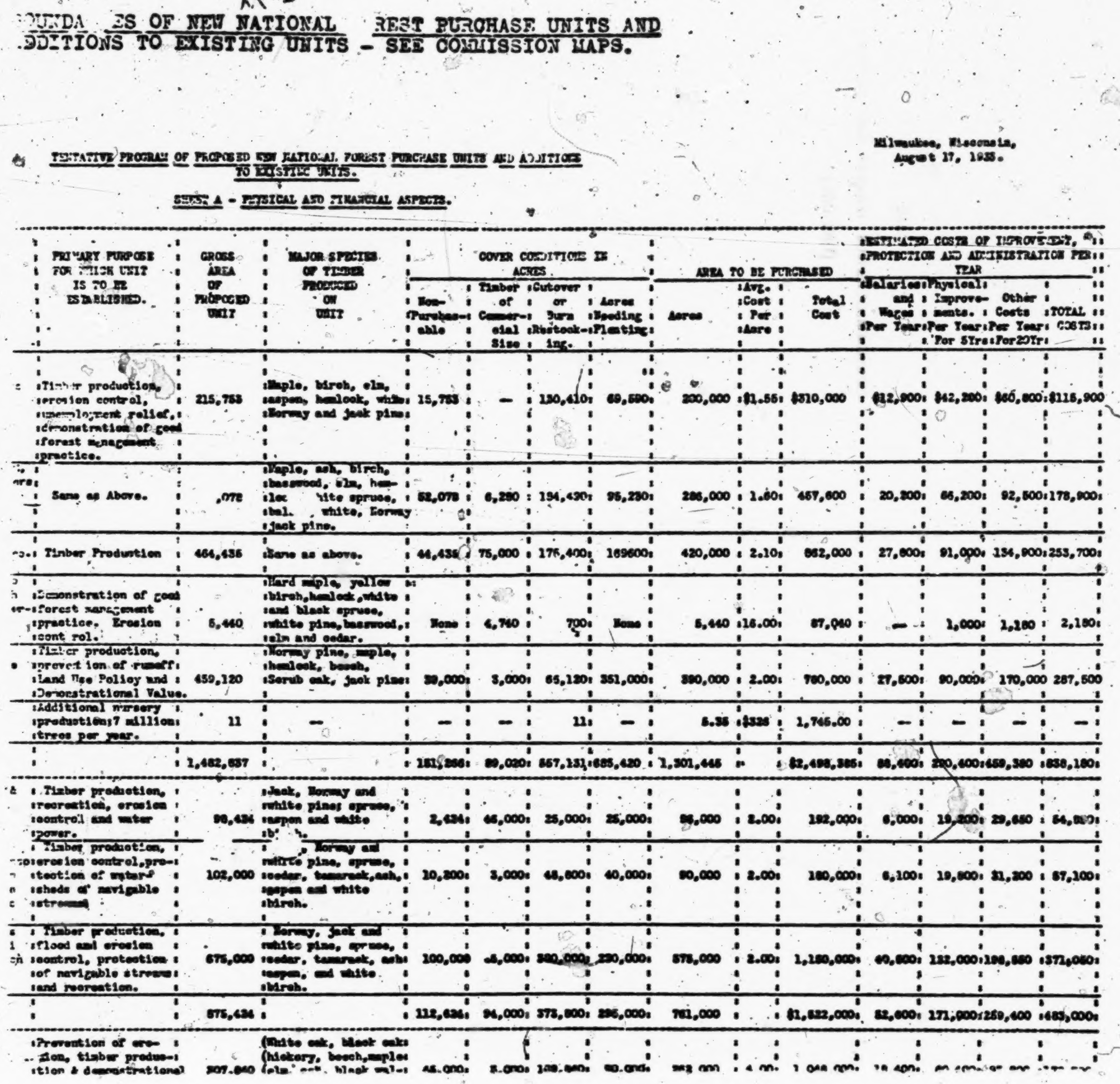
Salaries and Wages figured at $.06 per acre (gross). Physical improvements $.96 per acre (gross) includes following: (1) Suppression; (2) prevention (4) administration and protection improvements; (5) transportation and fire line system. Other Costs include planting costs $315,750 for 20 years and $1.45 per acre on 30% of gross area.

## BEFORE THE FEDERAL POWER COMMISSION

[261–262]

[257–258]

749-114 O : 34 (Face p. 244)



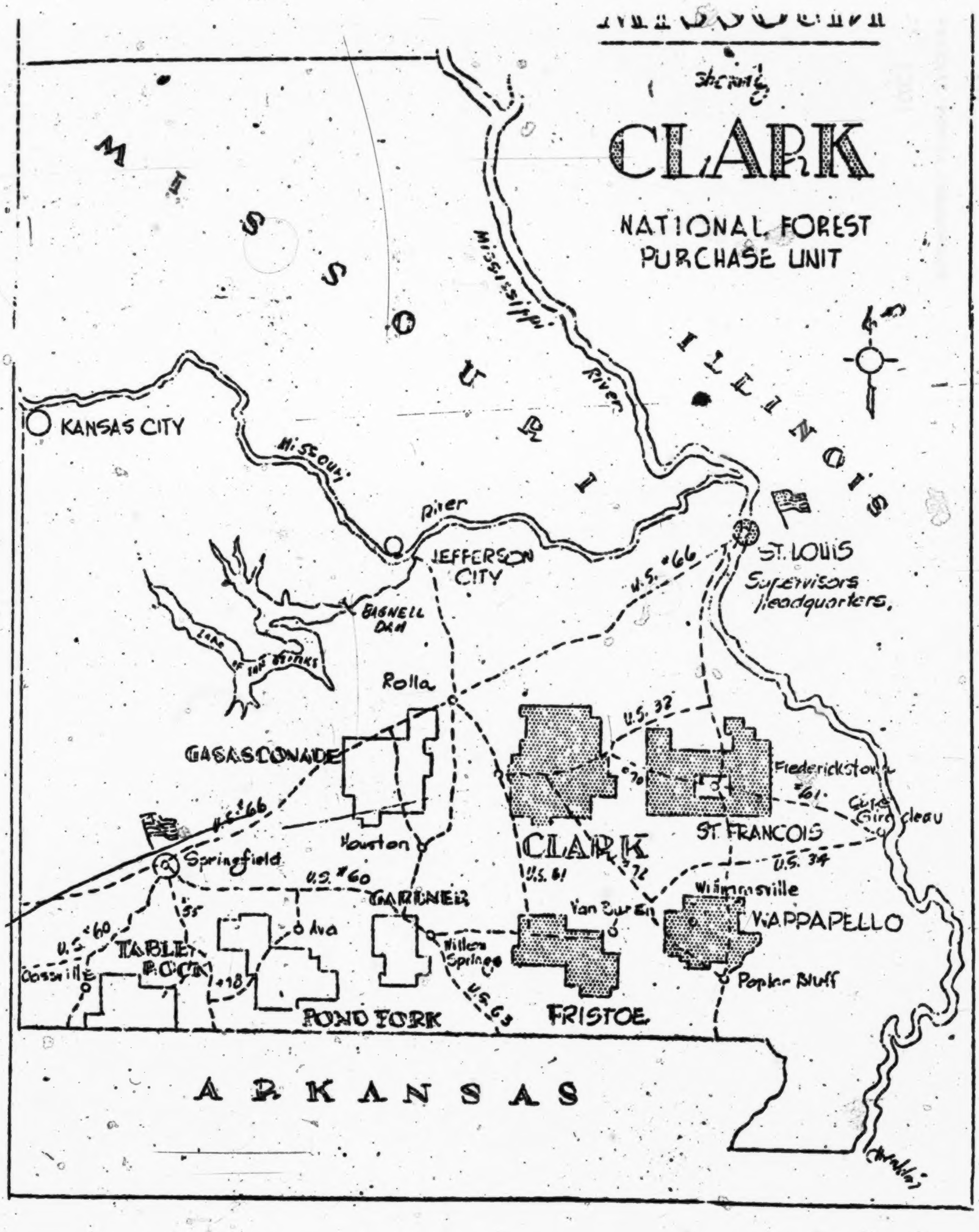
BOUNDA  ES OF NEW NATIONAL  REST PURCHASE UNITS AND
DDITIONS TO EXISTING UNITS – SEE COMMISSION MAPS.

Milwaukee, Wisconsin,
August 17, 1935.

TENTATIVE PROGRAM OF PROPOSED NEW NATIONAL FOREST PURCHASE UNITS AND ADDITIONS TO EXISTING UNITS.

SHEET A – PHYSICAL AND FINANCIAL ASPECTS.

| PRIMARY PURPOSE FOR WHICH UNIT IS TO BE ESTABLISHED. | GROSS AREA OF PROPOSED UNIT | MAJOR SPECIES OF TIMBER PRODUCED ON UNIT | COVER CONDITIONS IN ACRES |  |  |  | AREA TO BE PURCHASED |  |  | ESTIMATED COSTS OF IMPROVEMENT, PROTECTION AND ADMINISTRATION PER YEAR |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Non-Purchasable | Timber of Commercial Size | Cutover or Burn Restocking | Acres Needing Planting | Acres | Avg. Cost Per Acre | Total Cost | Salaries and Wages Per Year | Physical Improvements. Per Year For 5Yrs | Other Costs Per Year For 20Yr | TOTAL COSTS |
| Timber production, erosion control, unemployment relief, demonstration of good forest management practice. | 215,753 | Maple, birch, elm, aspen, hemlock, white Norway and jack pine | 15,753 | — | 130,410 | 69,590 | 200,000 | $1.55 | $310,000 | $12,900 | $42,200 | $60,800 | $115,900 |
| Same as Above. | ,072 | Maple, ash, birch, basswood, elm, hemlock, white spruce, bal. white, Norway jack pine. | 52,078 | 6,280 | 134,430 | 95,230 | 286,000 | 1.60 | 457,600 | 20,200 | 66,200 | 92,500 | 178,900 |
| Timber Production | 464,435 | Same as above. | 44,435 | 75,000 | 175,400 | 169600 | 420,000 | 2.10 | 882,000 | 27,800 | 91,000 | 134,900 | 253,700 |
| Demonstration of good forest management practice. Erosion control. | 5,440 | Hard maple, yellow birch, hemlock, white and black spruce, white pine, basswood, elm and cedar. | None | 4,740 | 700 | None | 5,440 | 16.00 | 87,040 | — | 1,000 | 1,180 | 2,180 |
| Timber production, prevention of runoff; Land Use Policy and Demonstrational Value. | 459,120 | Norway pine, maple, hemlock, beech, Scrub oak, jack pine | 39,000 | 3,000 | 65,120 | 351,000 | 390,000 | 2.00 | 780,000 | 27,500 | 90,000 | 170,000 | 287,500 |
| Additional nursery production; 7 million trees per year. | 11 | — | — | — | 11 | — | 5.35 | $326 | 1,745.00 | — | — | — | — |
|  | 1,482,657 |  | 181,266 | 89,020 | 567,131 | 685,420 | 1,301,445 |  | $2,498,385 | 88,600 | 290,400 | 459,380 | 838,180 |
| Timber production, recreation, erosion control and water power. | 98,434 | Jack, Norway and white pine; spruce, aspen and white birch. | 2,434 | 46,000 | 25,000 | 25,000 | 96,000 | 2.00 | 192,000 | 6,000 | 19,200 | 29,650 | 54,850 |
| Timber production, erosion control, protection of watersheds of navigable streams | 102,000 | [illegible], Norway and white pine, spruce, cedar, tamarack, ash, aspen and white birch. | 10,200 | 3,000 | 48,800 | 40,000 | 90,000 | 2.00 | 180,000 | 6,100 | 19,800 | 31,200 | 57,100 |
| Timber production, flood and erosion control, protection of navigable streams and recreation. | 675,000 | Norway, jack and white pine, spruce, cedar, tamarack, ash aspen, and white birch. | 100,000 | 45,000 | 300,000 | 230,000 | 575,000 | 2.00 | 1,150,000 | 40,600 | 132,000 | 198,450 | 371,050 |
|  | 875,434 |  | 112,634 | 94,000 | 373,800 | 295,000 | 761,000 |  | $1,522,000 | 52,600 | 171,000 | 259,400 | 483,000 |
| Prevention of erosion, timber production & demonstrational | 307,840 | (White oak, black oak (hickory, beech, maple (elm, ash, black wal- | 45,000 | 5,000 | 108,840 | 50,000 | 262,000 | 4.00 | 1,048,000 | 18,400 | [illegible] | [illegible] | [illegible] |



MISSOURI
showing
CLARK
NATIONAL FOREST
PURCHASE UNIT
MISSOURI
ILLINOIS
Mississippi River
KANSAS CITY
Missouri River
JEFFERSON CITY
BAGNELL DAM
Lake of the Ozarks
Rolla
ST. LOUIS
Supervisors Headquarters.
U.S. #66
U.S. 32
GASASCONADE
#70
Fredericktown
#61
Cape Girardeau
ST. FRANCOIS
U.S. #66
Houston
Springfield
CLARK
U.S. 61
72
U.S. 34
U.S. #60
GARDNER
Williamsville
Van Buren
WAPPAPELLO
55
Ava
U.S. 60
TABLE ROCK
Cassville
#18
Willow Springs
Poplar Bluff
U.S. 63
POND FORK
FRISTOE
ARKANSAS

|  |  |  |  | Size | ing. |  |  |  |  |  | For 5Yrs | For20Yr |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Timber production, erosion control, unemployment relief, demonstration of good forest management practice. | 215,753 | Maple, birch, elm, aspen, hemlock, white Norway and jack pine | 15,753 | — | 130,410 | 69,580 | 200,000 | $1.55 | $310,000 | $12,900 | $42,380 | $60,800 | $115,900 |
| Same as above. | ,072 | Maple, ash, birch, basswood, elm, hemlock, white spruce, bal... white, Norway jack pine. | 52,072 | 6,280 | 134,420 | 95,230 | 286,000 | 1.60 | 457,600 | 20,300 | 66,200 | 92,500 | 178,900 |
| Timber Production | 464,435 | Same as above. | 44,435 | 75,000 | 176,400 | 169600 | 420,000 | 2.10 | 882,000 | 27,800 | 91,000 | 134,900 | 253,700 |
| Demonstration of good forest management practice. Erosion control. | 5,440 | Hard maple, yellow birch, hemlock, white and black spruce, white pine, basswood, elm and cedar. | None | 4,740 | 700 | None | 5,440 | 16.00 | 87,040 | — | 1,000 | 1,180 | 2,180 |
| Timber production, prevention of runoff: Land Use Policy and Demonstrational Value. | 459,120 | Norway pine, maple, hemlock, beech, Scrub oak, jack pine | 38,000 | 5,000 | 65,120 | 351,000 | 390,000 | 2.00 | 780,000 | 27,500 | 90,000 | 170,000 | 287,500 |
| Additional nursery production; 7 million trees per year. | 11 | — | — | — | 11 | — | 5.35 | $326 | 1,765.00 | — | — | — | — |
|  | 1,482,637 |  | 151,266 | 89,020 | 567,131 | 685,420 | 1,301,445 |  | $2,498,385 | 88,400 | 290,400 | 459,380 | 838,180 |
| Timber production, recreation, erosion control and water power. | 98,424 | Jack, Norway and white pine; spruce, aspen and white birch. | 2,424 | 46,000 | 25,000 | 25,000 | 96,000 | 2.00 | 192,000 | 6,000 | 19,200 | 29,650 | 54,850 |
| Timber production, erosion control, protection of watersheds of navigable streams. | 102,000 | Norway and white pine, spruce, cedar, tamarack, ash, aspen and white birch. | 10,200 | 3,000 | 48,800 | 40,000 | 90,000 | 2.00 | 180,000 | 6,100 | 19,800 | 31,200 | 57,100 |
| Timber production, flood and erosion control, protection of navigable streams and recreation. | 675,000 | Norway, jack and white pine, spruce, cedar, tamarack, ash, aspen, and white birch. | 100,000 | 45,000 | 300,000 | 230,000 | 575,000 | 2.00 | 1,150,000 | 40,500 | 132,000 | 198,550 | 371,050 |
|  | 875,424 |  | 112,624 | 94,000 | 373,800 | 295,000 | 761,000 |  | $1,522,000 | 52,600 | 171,000 | 259,400 | 483,000 |
| Prevention of erosion, timber production & demonstrational value, Flood control of Miss. River. | 307,840 | (White oak, black oak (hickory, beech, maple (elm, ash, black walnut, red oak, basswood (black gum, honey locust, willow, cottonwood, red gum, hackberry, pecan, sycamore (catalpa, cypress. | 45,000 | 2,000 | 180,840 | 80,000 | 262,000 | 4.00 | 1,048,000 | 18,400 | 60,400 | 93,900 | 172,700 |
| Same as above | 291,392 |  | 43,300 | 1,300 | 106,792 | 140,000 | 248,000 | 4.00 | 992,000 | 17,400 | 57,000 | 105,400 | 179,800 |
|  | 599,232 |  | 88,300 | 4,300 | 276,632 | 220,000 | 510,000 |  | $2,040,000 | 35,800 | 117,400 | 199,300 | 352,500 |
| Production of timber: erosion control, | 147,000 | Red oak, white oak, hickory, walnut, ash, ironwood, elm, cedar, sycamore, butternut, maple and shortleaf pine. | 22,000 | 7,400 | 92,600 | 25,000 | 125,000 | 3.50 | 437,500 | 8,800 | 28,800 | 11,950 | 49,550 |
| production of forage: prevention of runoff: | 117,600 |  | 17,600 | 6,000 | 74,000 | 20,000 | 100,000 | 3.50 | 350,000 | 7,000 | 23,000 | 9,500 | 39,500 |
| demonstrational areas, stabilization of employment, flood control. | 147,000 |  | 22,000 | 7,400 | 92,600 | 25,000 | 125,000 | 3.50 | 437,500 | 8,800 | 28,800 | 11,950 | 49,550 |
| Same as above. | 147,000 | Same as above. | 22,000 | 7,400 | 92,600 | 25,000 | 125,000 | 3.50 | 437,500 | 8,800 | 28,800 | 11,950 | 49,550 |
| Same as above. | 117,600 | Same as above. | 17,600 | 6,000 | 74,000 | 20,000 | 100,000 | 3.50 | 350,000 | 7,000 | 23,000 | 9,500 | 39,500 |
|  | 676,200 |  | 101,200 | 34,200 | 426,800 | 115,000 | 575,000 |  | $2,012,500 | 40,400 | 132,400 | 54,850 | 227,650 |
|  | 3,633,693 |  | 453,390 | 221,520 | 1633,363 | 1325,420 | 3,147,445 | $2.56 | $8,072,885 | 217,200 | 711,200 | 972,930 | 1901,200 |

ments $.98 per acre (gross) includes following: (1) Suppression; (2) prevention and pre-suppression; (3) administration and protection equipment;
ire line system. Other Costs include planting costs $315,750 for 20 years and cultural cost $657,180 for 20 years. Cultural works based on

# BEFORE THE FEDERAL POWER COMMISSION

[259-260]

"Item 1."

# CLARK
## National Forest Purchase Unit
## MISSOURI

**PREVENT FOREST FIRES — IT PAYS!**

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

# CLARK
# National Forest Purchase Unit

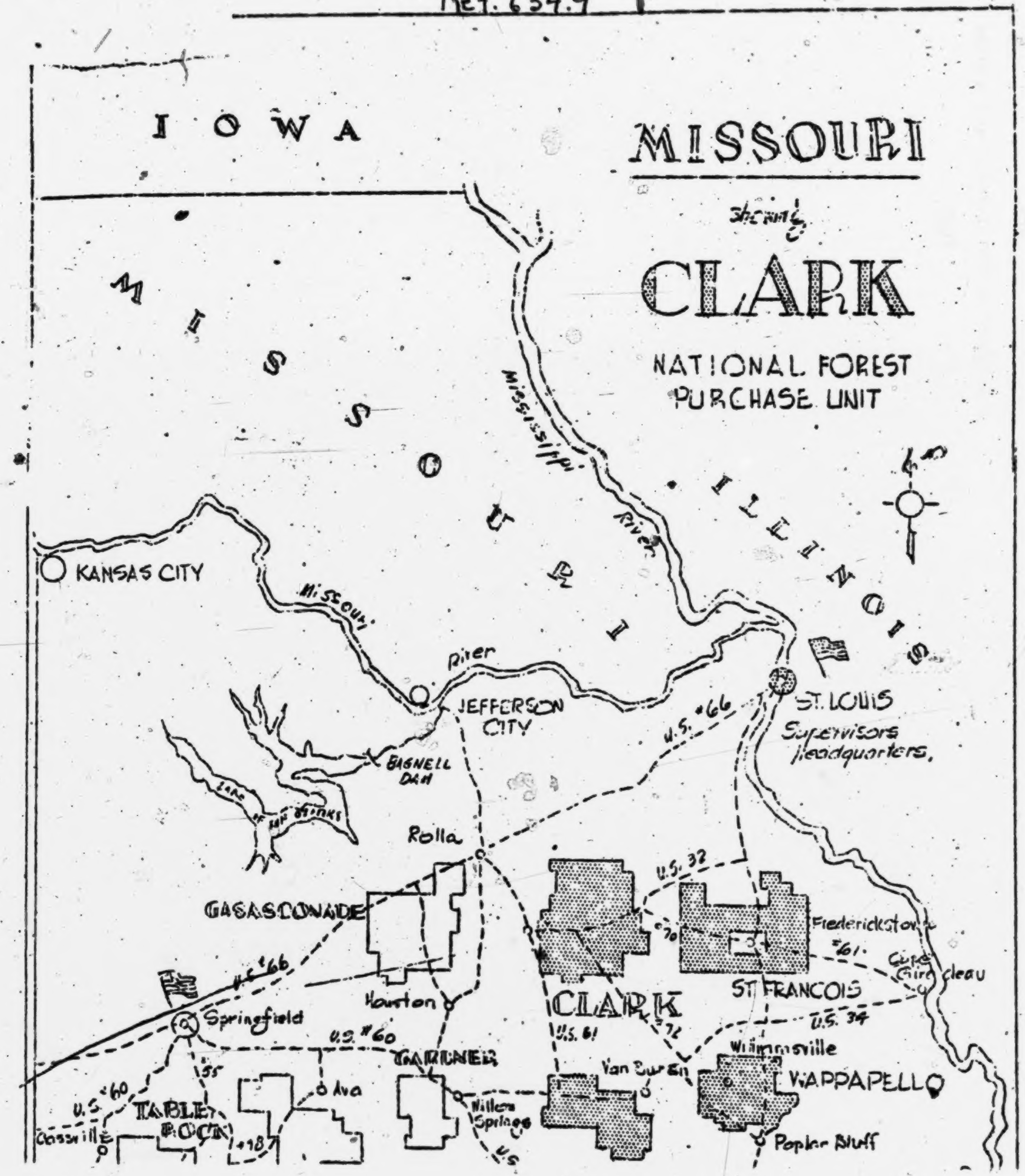
## MISSOURI

**PREVENT FOREST FIRES — IT PAYS!**

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ST. LOUIS, MISSOURI

X679239

Ref. 634.9



IOWA
MISSOURI
showing
CLARK
NATIONAL FOREST
PURCHASE UNIT
MISSOURI
ILLINOIS
Mississippi River
Missouri River
KANSAS CITY
JEFFERSON CITY
ST. LOUIS
Supervisors headquarters.
U.S. #66
BAGNELL DAM
Lake of the Ozarks
Rolla
U.S. 32
GASASCONADE
#70
Fredericktown
#61
Cape Girardeau
U.S. #66
Houston
CLARK
ST FRANCOIS
U.S. 34
Springfield
U.S. 61
#72
U.S. #60
GARDNER
Van Buren
Williamsville
WAPPAPELLO
U.S. #60
55
Ava
Willow Springs
U.S.
TABLE ROCK
Cassville
#187
Poplar Bluff

[264]

## FOREWORD

This bulletin, embodying the salient features in the development of the Clark National Forest, is issued for the purpose of disseminating information to the general public on the need for forestry and conservation in Missouri.

The United States Forest Service, in the administration and management of national forests, has as its objective the restoration of the natural resources to contribute to the social and economic rehabilitation of these areas.

PAUL D. KELLETER,
*Forest Supervisor.*

### Contents

| | Page |
|---|---|
| What Are the National Forests? | 1 |
| History of Land Use on the Clark Purchase Union | 3 |
| Establishment of National Forest Purchase Units in Missouri | 8 |
| The Purchase Program | 9 |
| Organization and Development of Clark Purchase Unit | 10 |
| Fire Control | 11 |
| Reforestation | 12 |
| Timber Stand Improvement | 13 |
| Management of Timber | 13 |
| Wild Life | 14 |
| Land Use Planning | 17 |
| Distribution of Income From Revenues | 18 |
| Recreation | 18a |
| Accomplishment, Clark Purchase Unit | 19 |
| Organization of Personnel, Clark Purchase Unit | 20 |
| Gross Area of National Forest Purchase Units in Missouri | 21 |

## What Are the National Forests?

With the creation of the first forest reserves in 1891 by President Harrison a new era in the use of land and natural resources began in the United States. Pioneers had settled the West, large farms and ranches were developed, mines were exploited for their precious metals, and the [265] lumberman was reaping a large harvest from fine, accessible timber, leaving in his wake burned over stump lands and a straggling population of unemployed woodsmen. It was at this time that a few farsighted individuals began to view with considerable apprehension the diminishing supply of timber and other natural resources. Pioneer foresters began to indorse the need for perpetuating the remaining stands of virgin timber, and the public became aroused to the point that legislation giving the President authority to set aside public domain as forest reserves was enacted. This marked the beginning of the conservation movement.

The first conservation concept in the United States was that of preservation, or the restriction of the forest reserve areas to all kinds of uses. This concept, however, was soon changed to that of "Wise Use" and in 1907 the name of reserves was changed to "National Forests" to conform with the new policy of administration. The National Forests have since been managed under the principle of placing every acre of national forest land to its highest use. "Wise Use" carries with it not alone the responsibility of present uses of the national forests, but a perpetuation of these uses for future generations. Thus, wild life activities must be so managed that an adequate supply of fish and game for future use is assured, recreational resources must be preserved for future as well as present use, and the cutting of timber must be so managed that a continuous supply will be available. The dominant feature in national forest administration is therefore to manage the forests so as to give "the greatest good to the greatest number in the long run."

The Forest Service, which has been given the responsibility for the development, protection, and administration of the national forests, is a bureau in the Department of Agriculture. The Chief Forester is at the head of the Forest Service and is responsible to the Secretary of Agriculture. The United States is subdivided into 10 national forest regions, with a Reginal Forester in charge of each [266] region. The responsibility for the administration, development and protection of each national forest is placed in the hands of a Forest Supervisor. The national forest is divided into Ranger Districts with a District Ranger assigned to each. Although there are necessarily several staff officers and assistants to carry out the work at each station, the Chief Forester, Regional Forester, Forest Supervisor, and the District Ranger are the key positions in the Forest Service organization. The whole organization is based on the theory of decentralization so that the Supervisors and District Rangers are given ample authority to handle most of the local problems and policies directly with the people using the national forest.

## History of Land Use of the Clark Purchase Unit

What were our Ozark forests before they were exploited by the white man? Were they endless tracts of pure virgin pine, was there a mixture of pine and hardwoods, or were there extensive tracts of both kinds of forest? These questions have been the subject of a great deal of discussion in recent years, based largely on statements from residents of the region and opinions from observers of present conditions. However, statements from "old-timers" of the region, sincere as they may be, are frequently erroneous and inaccurate like all traditions and stories handed down from generation to generation.

One of the earliest scientific explorers of the region, Henry R. Schoolcraft, spent the greater portion of the years 1818 and 1819 in the Ozark region of Missouri, collecting geological and botanical data. The account of his travels and observations was published in his "Mines of Missouri" and portions of it concerning the region between the headwaters of the St. Francois and Meramec rivers are so vivid that they are quoted as follows:

"Mineral ridges are invariably covered by a stinted growth of oaks, and what are here denominated post oaks. They are seldom found to grow higher than 30 feet and 40 [267] feet is the highest, seldom exceed a foot in diameter, and stand scattering. In some places walnut is found; and there is a ridge of yellow pine running the whole extent of the mine tract, from the St. Francois to the Merrimack, but it is not more than six or eight miles wide. * * * The hills also yield sassafrass, and the slopes which are richer soil, afford buckeye, black walnut, papaw, and persimmon, and some other trees, shrubs, and wild fruits, and the whole is covered in summer by a luxuriant growth of grass, even the poorest hills, which hide the flinty aspect of the country, and give it a very pleasing and picturesque appearance."

"The farmer here encloses no meadows—cuts no hay. The luxuriant growth of grass in the woods affords ample range for his cattle and horses, and they are constantly kept fat. Hogs are also suffered to run at large and in the fall are killed from the woods."

He also states that at that time the beaver had been "driven off" and that "the deer is still frequently met within the mineral woods, and from the great body of waste lands, will probably long keep possession of them." The following animals were to be found: deer, bear, wolf, fox, wild cat, panther, hedgehog, weasel, mink, otter, muskrat, raccoon, opossum, rabbit, pole cat, fox squirrel, grey squirrel, red squirrel and mole. He further states that "of birds there is an endless variety, the wild turkey is still very common on the bottom lands and during the heat of day in the open post oak woods. The wild goose, duck, brant and swan are to be found on the streams. The pelican is occasionally seen on coming up the Mississippi, but never ventures into the interior. The prairie hen is common, so are quails and pigeons; the latter in some parts of the interior so numerous that the woods seem alive with them."

B. F. Shumard, in a State Geological Report of 1873, describes the territory of the Meramec river and its tribu- [268] taries (Huzza, Crooked and Dry Creek) as broken and quite rocky; between the rocky hills he found 'extensive tracts of level Post and Black oak and Hickory lands. The valleys of the streams here are broad, extremely productive, and frequently heavily timbered with White and Burr oak, White and Black walnut, White or Sugar maple, Shellbark hickory, Pawpaw, Dogwood, Linden, Basswood, Grape and Haw."

From these early descriptions it becomes clear that the original forests were composed chiefly of hardwoods in the bottomlands, stands of pure pine and hardwood or mixtures on the slopes, and of "Stinted" oaks on the high ridges. How pleasing it must have been to the traveler passing through dense luxuriant forests of oak, walnut, gums, and hickories, broken up here and there by large open stands of stately pines, or from a ridge top viewing the panoramic splendor of the varying shades of green in the valleys, ravines and slopes below. What a paradise it must have been to the farmer, with such a luxuriant growth of grass, "even on the poorest hills" to fatten his cattle and horses. But what has changed these ideal conditions of the past? Why don't we have the fine stands of timber that once was ours, or the luxuriant grass that provided such excellent forage of our livestock? There are many factors which have caused this change but the two principal reasons are destructive logging and the practice of burning the woods annually. To these two factors may be added another of almost equal importance, overgrazing.

Destructive logging not only includes the large-scale cutting operations of lumber companies operating on a "Cut out and get out" policy, but the annual picking of the best trees of the forest by the settler or small sawmill operator. Both practices involved the cutting of the best trees and leaving the poorest formed trees, or trees of inferior species to reproduce a forest of lower quality and value.

When the last stands of our virgin timber were removed the lumber companies moved to other regions for further exploitation, leaving in their wake a straggling population [269] and declining communities—"Ghost towns" so typical of the region today. The unemployed woodsmen were forced to follow other means of securing a livelihood, many of them turning to the soil left partly cleared by the lumbering operations and to the game for fur and food. A large percentage of soil tilled or used for grazing was thin, rocky and so sterile that its productive capacity rapidly diminished, giving rise to the misconception that burning would improve pasture conditions.

Thus it was that these three abuses of land—destructive logging, woods-burning, and overgrazing—working hand in hand, caused such an impoverishment of the productive capacity of the soil as to result in declining communities and low incomes with all of their attendent social and economic problems. Fire alone

has caused untold losses by the destruction of trees, habitats for wild life, forage for livestock; and the leaf litter which has in turn resulted in the erosion of the top layer of soil. Even a small fire scar on a tree destroys enough bark to admit diseases into the tree and cause its decay; large ugly fire scars on trees are the result of frequent burning and usually make the trees valuless for high-grade timber.

The forest floor, made up of grass, leaf litter, and other vegetable matter, acts as a sponge and absorbs a large percentage of the rainfall and thus prevents quick run-off of water after torrential rains. The destruction of this forest floor by fire and overgrazing thus tends to increase the severity of floods, and the washing away of the rich top soil. According to flood-control specialists, the Ozark region, which constitutes less than 4 per cent of the Mississippi River Basin, has contributed an average, since 1911, in excess of 12 per cent of the flood flow on the Mississippi River. During the flood of April, 1927, the Ozarks contributed in excess of 38.3 per cent of the water flow. It is conservatively estimated that in a large percentage of the region as much as six inches of the top soil has been washed away. Since this portion of the soil is the richest [270] and most valuable one can readily appreciate the destruction that has taken place through erosion.

The remedies recommended for the solution of the problems are selective logging instead of destructive logging, control of fire by prevention of woods-fires, regulated grazing and hunting. The

solution cannot be accomplished over night, as in some cases it will require many years of protection to restore the productive capacity of the soil. It is the aim of the United States Forest Service to demonstrate how these remedies can be accomplished in the national forests of the Ozark region, and the ensuing pages will illustrate the methods to be followed in accomplishing these objectives.

## Establishment of National Forest Purchase Unit in Missouri

Realizing these conditions and aware of the work of the United States Forest Service in restoring, protecting, and using natural resources to furnish employment and serve the people, certain public-spirited citizens were instrumental in securing the passage of the Enabling Act by the Missouri Legislature in 1933. This act gave the consent of the State to the acquisition by the United States of lands to a maximum of 25,000 acres in any county, and was further amended at a Special Session of the State Legislature to provide for the purchase of 100,000 acres in any county. The Session of 1935 removed all county limitations on purchase of lands for national forest purposes.

Upon petition of these same enterprising citizens, the United States Forest Service made a preliminary examination of the region and recommended the establishment of the four original units; the Clark, Gasconade, Fristoe, and Pond Fork, with a gross area of 529,000 acres distributed in eighteen counties.

The National Forest Reservation Commission consisting of the Secretary of Interior, Secretary of Agriculture, two members of the Senate selected by the President of the Senate, and two members

[271] of the House of Representatives selected by the Speaker, approved these recommendations on August 30, 1933, thus establishing the first Missouri National Forest Purchase Unit.

On March 27, 1934, under an amendment to the Enabling Act, the four original Units were extended and the Gardner and Wappapello Units added, bringing the gross area to 2,261,242 acres distributed in twenty-one counties.

Two additional units were approved at the meeting of the National Forest Reservation Commission on January 21, 1935, the St. Francois and the Table Rock. Further extensions to the existing Units increased the gross area to 3,313,705 acres distributed in twenty-eight counties.

Finally, on March 31, 1935, since the administration of these eight Missouri Units from one central office was extremely difficult, the eight Missouri Units were turned into two separate National Forests. The four western Units, the Gasconade, Gardner, Pond Fork, and Table Rock now comprise the "Gardner National Forest," administered from the Supervisor's office in Springfield. The four eastern Units, the Clark, Fristoe, Wappapello, and St. Francois, make up the "Clark National Forest" with headquarters in St. Louis.

## The Purchase Program

Before the Government purchases land for national forest purposes it is carefully examined and appraised to ascertain its value. The entire area within the Clark National Forest Purchase Unit, comprising 1,970,396 acres, has been examined, so that when landowners submit proposals for the sale of their land, intelligent sale values can be given them without any undue delay.

Only forest land and submarginal farm lands valuable chiefly for timber production are purchased. Up to December 31, 1936, 740,000 acres within the Clark Purchase Unit have been approved for purchase by the Government, and in addition 30,000 acres have been optioned by the Govern-[272]ment for national forest purposes. Persons owning land within the boundary of the purchase unit are not forced to sell their forest land, but are merely contacted to determine their willingness to sell. People living on land sold to the Government will be permitted to continue occupancy, providing the use does not conflict with a higher, more important use, and subject to such restrictions as will assure adequate sanitary and fire-prevention measures. The occupancy will be covered by a "Special Use" permit, and a nominal annual rental required.

## Organization and Development of the Clark Purchase Unit

After the lands are purchased the Government immediately begins work to protect and develop it to its most productive use. The responsibility of directing the purchase, protection, and development of these lands in the Clark Purchase Unit rests with the Forest Supervisor, whose headquarters are located in St. Louis. Besides a small corps of administrative officers to assist the Supervisor on detail, inspection, and supervision, the Forest is divided into nine ranger districts with a Forest Ranger placed.

10

in charge of each. The Forest Rangers' headquarters are located at Salem, Potosi, Centerville, Fredericktown, Poplar Bluff, Piedmont, Doniphan, Van Buren and Winona.

To carry on the development work the Forest Service utilizes labor furnished by the various emergency programs as well as from regular funds. One of the most beneficial of emergency programs utilized is the Civilian Conservation Corps, or "CCC" as they are popularly called. The CCC has been of inestimable value for the protection from fire alone, to say nothing of their value in other work and in the rehabilitation of American youth.

## Fire Control

The most important activity in the conservation of timber, wild-life, and soil is the protection of these resources from fire. To attain this objective on the Clark Purchase [273] Unit, the Forest Service is concentrating on two major activities—prevention of fires and vigorous control after their inception. Every conservation-minded person in the region should endeavor to teach others to put out their camp fires before leaving them, to extinguish their cigarettes before throwing them away, and to point out the mistakes in burning over the woods.

To suppress fires quickly after they have started, the Forest Service is constructing lookout towers, telephone lines, roads and buildings for the housing of tools and equipment at camps and other strategic locations for immediate dispatch to fires. During the year 1934 a total of 189 fires occurred on the Unit, burning 17,692 acres;

11

up to December 10, 1935, there were only 102 fires, burning a total area of 3,550 acres, or a decrease of 46 per cent in the number of fires and 79 per cent in the acreage burned over the year 1934.

To carry on efficient fire control work, the Forest Service has already constructed 20 lookout towers, where watchful eyes scan the countryside for starting fires, 333 miles of telephone lines for instant communication with protective forces, and 401 miles of roads for rapid transportation of men and equipment to fires. For housing men at lookout towers, the construction of 34 lookout stations is planned; 10 are already complete. To complete the building of protective improvements the following additional construction is planned; 24 lookout towers, 371 miles of telephone lines, 738 miles of roads and 5 ranger stations. Seven ranger stations having been completed.

## Reforestation

To place the national forest land into its most productive use will require the planting of trees on approximately 100,000 acres within the Clark Purchase Unit. This will involve the planting of a portion of the open areas and increasing the number of valuable trees on lands but partially stocked with valuable trees. In planning the planting job, care is being taken to reserve enough open areas for [274] the preservation and propagation of wild life. Planting will be done only with trees native to the State of Missouri, and will consist chiefly of shortleaf pine, white and black oaks, hickory and walnut.

12

The pine trees to be planted are first grown in the Licking Nursery, from seed collected on the Forest, then transported to the Forest, and planted. Most of the reforestation of hardwoods will be carried on by direct seeding of acorns and nuts, which will need protection from hogs for the first two years.

## Timber Stand Improvement

To hasten the growth of timber of commercial value, timber stand improvement is being conducted on the Forest. In hardwood stands the most promising trees of commercial importance are selected as "Crop Trees" at a spacing of about fifteen feet; and "liberated" by cutting out smaller defective trees interfering with their growth. No trees are cut which do not interfere with growth of the crop trees, thus still maintaining a mixed forest of all sizes, ages, and species. At least three "Coon trees" are left per acre, and no underbrush is cut in order to retain the natural forest cover, so valuable for wildlife and so important in the control of erosion. Where pine trees are growing together in such dense stands that their growth is being stunted, the stand is "Thinned" to make healthier, more rapid-growing trees.

Up to this time more than 20,120 acres of timber stand improvement work have been accomplished; 400,000 acres of this type of work is planned.

## Management of Timber

A large number of people living within and adjacent to national forests are dependent upon the utilization of timber and other forest

products for a livelihood. We have described in the foregoing pages how the lumber companies adopting a "cut [275] out and get out" policy, left stranded populations and towns without a sufficient amount of employment to maintain normal living conditions. It is the aim of the Forest Service to so manage the national forest timber that an amount equal to the annual growth will be cut each year, only thereby stabilizing employment and insuring raw material for the permanence of wood-using industries and communities.

A very large percentage of the forest in the Clark Purchase Unit is young and immature, but with increased protection from fire and through timber stand improvement a great deal of timber will be available in the near future. Even the poor forest land, such as is found on the upper slopes of the Ozarks, it is safe to estimate, will yield 2,500 board feet per acre with

100 years growth. On better soils the yield will be much higher.

The cutting of timber on national forest land is restricted and done so that it will not affect adversely the recreation or other higher uses of the land. As the cutting will be carried on by selective logging there will be very little danger of disturbing the habitats of wild life.

## Wild Life

Fish and game are primary natural resources of the forest and as such receive their share of attention in plans for development of the forest as a whole. The objective for wild life management is to develop and maintain desirable numbers of each species according to its biological, economic, and social importance. This objective may

14

be accomplished by field management for establishing suitable living conditions, food and cover adequate to the needs of the various species, protection of the existing brood stock of a species by establishing refuges suitable to its range, provision of places for escape from hunters, natural enemies, and predators or control of hunting, and restocking where no brood stock is available from which to develop a population of the animal in question.

[276] Planning for fish and game development will ultimately consider each section of land in the forest according to its possibilities for development. These plans involve a survey of the entire forest to determine the present range and distribution of each species; the taking of game census to determine the present stocking; range analysis to determine present carrying capacity and requirements for increasing carrying capacity; establishment of study plots and observation areas to determine plant growth and natural succession; specific plans for establishment of refuges; food and cover planting; plant and seed collection; restocking; fish rearing ponds; water holes; migratory waterfowl resting and feeding stations; a

survey of stream conditions; improvement of streams for desirable living conditions for fish; provision for utilization of game and fish; as well as a means of promoting public understanding of development procedures and their part in the conservation program.

Considerable progress has been made in the past year in setting up these plans and a beginning has been effected in carrying them out. The Forest Service in cooperation with the State Game and Fish Department has liberated over 1,000 artificially propagated wild turkeys on the Clark Purchase Unit as brood stock for establishment of turkey flocks in places where they are either completely absent or reduced to such small numbers that successful management for recovery of sizeable flocks is questionable. Over 60 such groups of brood stock have been liberated at a very early age and under the most desirable conditions available for their accommodation to living in the wild. These birds, for the most part, are concentrated in areas proposed for refuge establishment where they will be afforded additional protection against hunting and permitted to increase without human interference.

Through cooperation of the State Conservation Departments of Missouri and Minesota seven young deer have been made available from Minnesota to establish a deer herd on the forest which under careful management should develop large permanent herd.

[277] The U.S. Bureau of Fisheries has furnished approximately 100.000 small mouth bass, 36,000 large mouth bass, 40,000 blue gills and 12,500 rock bass from the government hatchery at Mammoth Springs, Arkansas, for restocking waters of the forest.

Two large refuges totaling 23,600 acres have been established as cooperative Forest Service State Game Refuges. Four additional refuges are in the process of being approved for establishment.

Construction has been begun on one bass rearing pond and plans are being developed for construction of four other ponds; one migratory waterfowl and fishing lake totaling approximately 500 acres; improvement of game conditions by development of a system of ridge water holes, salt licks, and food patches; and
preservation of den trees, open areas, and nesting sites for game.

16

General reconnaissance of the entire forest has been made to determine wild life conditions, wild life developments already in effect, and desirable locations for development along special lines. One hundred sixty miles of streams on the forest have been surveyed for improvement. Five large study plots have been established and fenced against disturbance by cattle and some survey of grazing conditions has been made.

It is evident that improvement of wild life conditions and permanent establishment of game and fish populations will be necessarily slow in keeping with general forest improvement and protection. The 11,451 acres which have been sown to Lespedeza should materially affect game conditions along with improvement of food and cover conditions afforded by protection of the entire forest against fire. All of the factors of forest protection and development including resultant influences on soil erosion are intimately associated with resultant wild life improvements in establishment of suitable places for animals, birds, and fish to live.

## [278] Land Use Planning

The objective of land use planning is the adjustment of all land within the national forests to its highest use, based on maximum benefits to the public, and the translation of these benefits into terms of permanent rehabilitation through steady employment in the development and use of national forest resources, assuring social and economic security to a dependent forest population. Accomplishment of this

17

objective on the Clark Purchase Unit will have many far-reaching, beneficial results, chief of which are the following:

1. Seasonal employment of residents living within or near the forest who are partly dependent on forest work.
2. Stabilization of population through forest work.
3. The adjustment of all land to its highest use. This will be accomplished through the employment of residents dependent on work.

The first step to be taken in land use planning on the Clark Purchase Unit is an inventory of the work needed to place the land into its highest productivity. The second step is a population survey of all dependents and partially dependent forest workers. Constructive work on the Meramec Forest Resettlement project has already begun, and workers in each dependent family employed on productive work during the winter.

18

## Distribution of Income From Revenues

Twenty-five per cent of the gross receipts from all Forest revenues, such as grazing permits, timber sales, leases of recreational areas, and other resources, is given by the Federal Government to the Counties for roads and schools. In addition, ten per cent is used by the Forest Service for road construction and maintenance within the forests. The balance goes into the United States Treasury, as the Forest Service operates on direct appropriations.

[279] During the first few years of initial establishment of the National Forest the income to Counties from these sources is usually small, but it is expected that as development work progresses the income will gradually increase.

## Recreation

One of the highest, most important uses of National Forest land is the public enjoyment of the forest. Recreational facilities have a definite place in the development of the Clark Purchase Unit, but no development can take place until lands of recreational value are purchased. Special effort is being made to secure some of the most desirable tracts for the development of public camp grounds, picnic grounds, and nature-study trails. Definite plans are now made for the development in the near future of several camp grounds featuring swimming pools, and hiking and saddle trails.

Roadside beautification is also a major activity of the Forest Service work, and to date more than two hundred miles of roadside have been cleared of large stumps and other debris. Minor camp grounds have also been developed at some of the lookout towers, and a

complete inventory has been made of all land within the Forest boundaries having recreational possibilities.

Cook's Spring camp and picnic grounds located ¼ mile from the West Fork Black River, 12 miles from Centerville, Reynolds County is open to the public. An area of 5 acres which is fenced, offers approved drinking water, fire places, picnic tables and tent sites.

A large council bonfire place for group gatherings and a log shelter with fire place and dressing rooms has been completed. The area lies in an attractive valley readily reached over good roads.

## 18b

## Accomplishments

### Clark National Forest as of January 1, 1937

| | |
|---|---|
| Timber Stand Improvement | 55,109 acres |
| Fire Hazard Reduction | 64,910 acres |
| Roadside Beautification | 242 acres |
| Road Construction (Truck Trails) | 401 miles |
| Telephone Lines Construction | 333 miles |
| Lookout Tower Construction | 20 towers |
| Dwellings at Lookout Stations | 10 buildings |
| Ranger Office Buildings | 7 buildings |
| Ranger Warehouse Buildings | 6 buildings |
| Ranger Oilhouse Buildings | 5 buildings |
| Ranger Dwellings (incomplete) | 2 buildings |
| Wildlife Seeding | 11,451 acres |
| Planting and Seeding (P–1470) (S–1107) | 2,577 acres |
| Stream Surveys | 165 miles |
| Lineal Surveys | 343 miles |
| Fire Fighting (July 1, 1934 to December 31, 1936) | 18,614 man days |
| Purchased, optioned and approved land as of December 31, 1936 | 770,000 acres |
| Intensive Forest Inventory | 90,583 acres |
| Extensive Inventory, entire Forest | 1,970,396 acres |

## 19

## Present Organization of Personnel

### Clark Purchase Unit, January 1, 1937

### Office of the Forest Supervisor, St. Louis, Missouri

| | |
|---|---|
| Forest Supervisor | Paul D. Kelleter |
| Assistant Forest Supervisor | J. N. Diehl |
| Staff Officers: | |
| Executive Assistant | Arthur A. Janson |
| Asst. to Executive Assistant | Leo M. Duncan |
| Acquisition and Land Use Planning | Ray W. Knudson |
| General Inspector | George O. White |
| Master Plans & Timber Management | G. A. Limstrom |
| Wild Life Management | E. L. Atwood |
| Recreation and Landscaping | Walter A. Werner |

[281]

## Ranger Districts

| *Name of Ranger District* | *District Ranger* | *Headquarters* |
|---|---|---|
| Meramec | Perle Lewis | Salem |
| Courtois | Justin Longmoor | Potosi |
| West Fork | Harley H. Thomas | Centerville |
| Winona | Wilfred M. James | Winona |
| Fremont | Wm. L. Hatch | Van Buren |
| Running Water | Paul M. Kihlmire | Doniphan |
| Black River | Lawrence Battey | Poplar Bluff |
| Piedmont | D. W. Gilmore | Piedmont |
| Castor River | E. M. Howell | Fredericktown |

## Gross Areas of National Forest Purchase Units in Missouri.

| | *Gross Area in Acres* |
|---|---|
| Clark Purchase Unit: | |
| Clark Unit | 704,469 |
| Fristoe Unit | 466,655 |
| St. Francois Unit | 451,680 |
| Wappapello Unit | 347,592 |
| Total | 1,970,396 |
| Gardner Purchase Unit: | |
| Gardner Unit | 269,831 |
| Gasconade Unit | 480,855 |
| Pond Fork Unit | 356,013 |
| Table Rock Unit | 242,844 |
| Total | 1,349,543 |
| Grand Total—All Missouri Units | 3,319,939 |

[282] Before the Federal Power Commission

*"Item II."*

Federal Register, Friday, September 15, 1939 (p. 3908.)

* * * * *

## Clark National Forest—Missouri

By the President of the United States of America

### A PROCLAMATION

Whereas certain lands within the State of Missouri have been acquired or are in process of acquisition by the United States of America under authority of the act of March 1, 1911, c. 186, 36 Stat. 961 (U.S.C., title 16, sec. 516), as amended by the act of June 7, 1924, 43 Stat. 653 (U.S.C., title 16, sec. 515), the act of March 31, 1933, c. 348, 48 Stat. 22 (U.S.C., title 16, sec. 585), the National Industrial Recovery Act, approved June 16, 1933, 48 Stat. 195, 202 (U.S.C., title 40, sec. 403), and the Emergency Relief Appropriation Act of 1935, approved April 8, 1935, 49 Stat. 115; and

Whereas it appears that it would be in the public interest to give such lands, together with certain intermingled public lands, a national-forest status:

Now, Therefore, I, Franklin D. Roosevelt, President of the United States of America, under and by virtue of the power vested in me by section 24 of the act of March 3, 1891, 26 Stat. 1095, 1103 (U.S.C., title 16, sec. 471), the act of June 4, 1897, 30 Stat. 34, 36 (U.S.C., title 16, sec. 473), and the acts above mentioned, do proclaim (1) that there are hereby reserved and set apart as the Clark National Forest all lands of the United States within the area hereinafter

* * * * *

[283] In United States Court of Appeals for the Eighth Circuit

No. 17,142

Petition for Review of Order of the Federal Power Commission

UNION ELECTRIC COMPANY, PETITIONER

*v.*

FEDERAL POWER COMMISSION, RESPONDENT

---

*Opinion—January 13, 1964*

---

Before JOHNSEN, Chief Judge, MATTHES, Circuit Judge and GIBSON, District Judge.

GIBSON, District Judge.

Petitioner, Union Electric Company, seeks review of an order of the Federal Power Commission holding that Union Electric's proposed construction of a Hydroelectric Power Plant on the East Fork of the Black River, in Reynolds County, Missouri, would affect the interests of interstate commerce, thus necessitating a license for a project from the Commission, pursuant to the provisions [284] of the Federal Power Act. § 23 (b), 16 U.S.C.A. 817 (Commissioner's "Opinion No. 356" Apr. 19, 1962).

Section 23(b), Part I of the Federal Power Act (16 U.S.C.A. 817) provides in part as follows:

> "* * * Any person, association, corporation, State or municipality intending to construct a dam or other project works across, along, over, or in any stream or part thereof, other than those defined in this chapter as navigable waters, and over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States shall before such construction file declaration of such intention with the Commission, whereupon the Commission shall cause immediate investigation of such proposed construction to be made, and if upon investigation it shall find that the interests of interstate or foreign commerce would be affected by such proposed construction, such person,

> association, corporation, State, or municipality shall not construct, maintain, or operate such dam or other project works until it shall have applied for and shall have received a license under the provisions of this chapter. If the Commission shall not so find, and if no public lands or reservations are affected, permission is granted to construct such dam or other project works in such stream upon compliance with State laws. June 10, 1920, c. 285, § 23, 41 Stat. 1075; Aug. 26, 1935, c. 687, Title II, § 210, 49 Stat. 846."

Pursuant to § 23(b), the petitioner, Union Electric Company, a corporation, hereinafter referred to as "Union", filed a declaration of its intention to construct, operate, and maintain a "high head pumped-storage electric generating station to be known as its 'Taum Sauk Plant' " to be located on and near the East Fork of the Black River about four miles above the confluence of the East Fork and Black River. The East Fork is non-navigable, [285] but the Black River, into which it flows, is navigable to a limited extent below its confluence with the East Fork and flows into the White River, which in turn empties into the Mississippi. Ties and logs have been floated down the Black River and apparently flat-bottomed boat floats made on these waters.

This project is to be located solely on private lands and the transmission line leading therefrom located on private right-of-way, except where crossing public roads, and no public lands or reservoirs will be occupied or flooded by the project.

The project is located on the East Fork of the Black River in Reynolds County, Missouri, at an elevation of 700 feet above mean sea level, (all references to elevations are above mean sea level) and contemplates a damsite which would impound approximately 6350 acre-feet of water with a free crest sp[illegible]way at 750 feet and sluice gates at points between 715 and 734 feet. This would be known as the lower pool. The drainage area upstream from the damsite is 88 square miles. An upper reservoir is to be constructed on the top of an adjoining mountain at an elevation of more than 1500 feet. A pressure tunnel and conduit of approximately 6400 feet will connect the upper pool or reservoir with a pumping and generating station to be located on an open channel running to the lower pool, on which will be housed two reversible pump-turbine units, capable of generating 350,000 kilowatts. This would provide an 8-hour generating cycle, while the pump-back operation would take about 11 hours with an average head of about 392,000 kilowatts.

The operation contemplates the use of only 4350 acre-feet of water which will be pumped from the lower to the [286] upper pool during hours when the demand for electricity is low, by the use of the reversible turbines as pumps, with power supplied from other available generating units, and then allowing the water thus stored in the upper pool to flow through the tunnel and open channel, thus operating the turbines by water power for generation of electricity during periods of peak demands or in emergencies. After passing through the turbines the water will discharge into the open channel to the lower pool, thus completing the cycle of operation. This type of pump-back storage pool operation is in effect a method of storing energy for use at desired times. Union is a public utility under the Federal Power Act and operates both hydroelectric and steam generating plants, selling electricity in parts of Missouri, Illinois, and Iowa over its own transmission lines by which it transmits electric energy in interstate commerce to and from Missouri, Iowa, and Illinois. All of such transmission lines are subject to the jurisdiction of the Federal Power Commission under Part II of the Federal Power Act [§§201–209, 16 U.S.C.A. 824–824(h)] and the transmission line to be constructed from the Taum Sauk project will be interconnected with the interstate transmission facilities of Union.

The Federal Power Commission, pursuant to § 23(b), Part I of the Federal Power Act, made an investigation of this project, held public hearings, made a finding affirming the Commission's Staff's conclusion "that the construction, operation and maintenance of the proposed project would affect the interest of interstate or foreign commerce" and issued an order that "Union Electric Company is required to obtain a license for its proposed Taum Sauk project works, pursuant to the provisions of the Federal Power Act." The Commission said that "on [287] the basis of the facts stipulated he [the examiner] found that construction of the proposed project would have an inevitable effect upon the navigable capacity of the Black River during periods of high water; and further that the project would have the capability of substantially affecting that navigability at all times" and further found: (Although he did not base his decision on this finding)

> "The proposed Taum Sauk Project will be constructed, operated and maintained for the development of power to supply markets not only in Missouri but also in the state of Illinois, thereby affecting the interest of interstate or foreign commerce."

The Commission in its decision adopted both findings as the basis for its order that it was necessary to obtain a license for such project.

By agreement of the parties, construction was commenced and the project is now completed, Union agreeing to apply for a license from the Federal Power Commission if the Order of the Federal Power Commission is sustained by the courts. State and county consent had been obtained for the project. The conditions imposed for a license may be considered quite onerous, although in the public interest, if the interests of interstate commerce is affected.[1]

---

[1] The Federal Power Act prescribes certain of the terms and conditions to be included in licenses for water power projects. Among the conditions prescribed are the following:

"1. That each license shall be limited to a period of fifty years—Section 6 of Federal Power Act, 16 U.S.C.A. 799;

"2. That after twenty years of operation, surplus earnings 'in excess of a specified reasonable rate of return upon the net investment' of the licensee shall be maintained as a reserve which the Commission may order held until the end of the license period or applied in reduction of net investment—Section 10(d), 16 U.S.C.A. 803(d);

"3. That the licensee shall pay a reasonable annual charge 'in an amount to be fixed by the Commission'—Section 10(e), 16 U.S.C.A. 803(e);

"4. That the United States may acquire the project at or after the end of the license period upon payment of the net investment of the licensee not to exceed the fair value—Section 14, 16 U.S.C.A. 807;

"5. That the accounts and records of the licensee shall be kept in accordance with rules and regulations of the Commission—Section 301 (part III of the Act), 16 U.S.C.A. 825;

"6. That the Commission may fix rates of depreciation and may prescribe what charges are to be treated as depreciation charges—Section 302 (part III), 16 U.S.C.A. 825a;

"7. That the licensee shall file annual and other periodic and special reports—Section 304 (part III), 16 U.S.C.A. 825c."

The statute also authorizes the Commission to require that additional conditions be incorporated in the license—Section 10(g), 16 U.S.C.A. 803(g).

[288] The petitioner, after filing an application for rehearing, which was denied, petitioned this Court for review of the opinion and order of the Federal Power Commission, pursuant to the provisions of § 313(b) of the Federal Power Act [U.S.C.A., Title 16 § 825(L)(b)] and in its petition not only takes issue on the merits of the findings and order of the Commission but contends that the Commission did not have jurisdiction to issue an order and consequently there is nothing for this Court to review. We shall first consider the jurisdictional issue.

Union contends that aforesaid § 313(b), Part III of the Federal Power Act, U.S.C.A., Title 16, § 825(L)(b), providing,

> "(b) Any party to a proceeding under this Act aggrieved by an order issued by the Commission in such proceeding may obtain a review of such order in the Circuit Court of Appeals of the United States for any circuit wherein the licensee or public utility to which the order relates is located or has its principal place of business, or in the United States Court of Appeals for the District of Columbia, by filing in such court, within sixty days after the order of the Commission upon the application for rehearing a written petition praying that the order of the Commission be modified or set aside in whole or in part",

[289] comprehends only a review of an order issued by the Commission and that § 23(b) of the Federal Power Act does not authorize an order but only a finding contending that the order of the Commission in nature and subject matter is void as beyond the jurisdiction of the Commission.

Union in its Declaration of Intention asked that the Commission "by order find that the interests of interstate or foreign commerce would not be affected and that public lands or reservations would not be affected by the construction and operation of the proposed project." Also, Union's exceptions to the examiner's report included a proposed order reading:

> "IT IS ORDERED that Union * * * shall be permitted to construct, operate and maintain the Taum Sauk Project upon compliance with applicable state laws."

Union's application for administrative rehearing raised no question as to the Commission's jurisdiction or authority to issue an order in this case. The Commission contends, therefore, that such objection cannot be raised in this Court as the provisions of § 313(b) impose a jurisdictional restriction on the power of reviewing courts to review only such matters as shall have been presented to the Commission in an application for rehearing. The pertinent part of § 313(b) cited by the Commission reads as follows:

> "* * * No objection to the order of the Commission shall be considered by the Court unless such objection shall have been urged before the Commission in the application for rehearing unless there is reasonable ground for failure so to do * * *."

The Commission further contends there is no reasonable ground for failure to raise this objection in the applica-[290]tion for rehearing. Without making an exhaustive analysis and comment on the cases cited by the Commission, it has always been regarded as fundamental that jurisdiction over the subject matter cannot be waived by the parties by either action or lack of action. In other words, jurisdiction cannot be conferred where none exists. It, however, is not necessary for this Court to rule upon that contention for the reason that it finds that § 23(b) contemplates the issuance of an order based upon the findings and conclusions of the Commission and that such order is properly reviewable by this Court. Union contends that said § 23(b) contemplates only a finding by the Commission and that the Commission has no jurisdiction to issue an order requiring it to obtain a license. It is true that the Commission cannot make the petitioner obtain a license and construct the project, but it can impose the condition and sanction that if the project is to be constructed a license must be obtained. This is the only logical procedure for a proceeding under this Section. This Section certainly does not intend that resort to the Commission is mandatory to ascertain whether or not a license should be obtained, impose a flat prohibition against unlicensed construction if the Commission finds the project would affect interstate commerce, and at the same time permit this finding to be ignored, construction started by applicant in the face of civil and criminal penalties under §§ 314 and 316 of the Act, and thus place the burden on the Commission to sue in the District Courts for an injunction and allow the District Court to make a finding *de novo* on this essentially legislative matter. See *U.S.* v. *Twin City Power Co.,* 350 U.S. 222, 224. Under Union's theory the burden of going forward after an adverse finding and order to it would be placed on the Com-[291]mission. This would affect the quantum of proof and the burden of proof would be shifted from Union to the Commission. Here the burden of going forward after an adverse order should properly be upon Union by way of a petition for review of the Commission's findings and order. The only logical and properly expeditious method is for the Commission to issue an order based on its findings and allow a review of that order by the appropriate Court of Appeals. We find that the statute contemplates this type of proceeding.

The Commission also contends that petitioner has possibly waived any objection on the jurisdictional issue and is estopped to contest the Commission's right to take such action, because it requested the issuance of the order made, although not in the form in which it was made. As jurisdiction over subject matter cannot be waived, we find no merit in that estoppel claim. It should be noted that there are civil and criminal penalties provided in §§ 314 and 316 of the Federal Power Act for violation of the prohibition in § 23(b), which facts placed stringent legal consequences to the Commission's determinations in these matters.

The Commission's order or determinations have been judicially reviewed under § 313(b) in the following cases: *Citizens Utilities Co.* v. *F.P.C.,* 279 F.2d 1 (2d Cir. 1960), cert. denied, 364 U.S. 893; *Montana Power Co.* v. *F.P.C.,* 185 F.2d 491 (D.C. Cir. 1950), cert. denied, 340 U.S. 947; and *Georgia Power Co.* v. *F.P.C.,* 152 F.2d 908 (5th Cir. 1946). These cases are all authority for its findings and determinations being "orders", since the parties may not waive the issue of the court's jurisdiction. *Houston Natural Gas Corp.* v. *S.E.C.,* 100 F.2d 5 (4th Cir. 1938).

[292] The *Citizens Utilities* case (supra) was heard on petition to review an order of Federal Power Commission determining that the river was navigable and that the project in construction would require an application for license in order to be completed. It was shown that in the regular operation of the project, parts of the navigable stream would be made non-navigable. The Court also states (l. c. 3):

> "It must always be remembered that in construing subchapter I of Chapter XII of Title 16, U.S.C.A., we are to take into consideration, not alone, the condition of the stream as it is, but that 'it is proper to consider the feasibility of interstate use after reasonable improvements which might be made.' *U.S.* v. *Appalachian Electric Power Co.,* 311 U.S. 377, 409, 61 Supreme Court 291, 300; 85 L.Ed. 243."

The *Montana Power Company* v. *F.P.C.* case also was reviewed by the Court of Appeals for the District of Columbia on a petition to review orders of the Federal Power Commission requiring petitioner to apply for licenses for its nine hydroelectric projects located on navigable water or occupying public lands without proper authority. The Court there in substance upheld the Commission, although the case was affirmed in part and remanded in part.

In the *Georgia Power* case (supra) the Fifth Circuit on petition reviewed an order of the Federal Power Commission ordering petitioner if it decided to erect a hydroelectric power plant on the Oconee River in Georgia to apply for and accept a license in accordance with the terms of the Federal Power Act. In that case the constitutionality of the Act was attacked as applied to a project located on a non-navigable part of a navigable stream. [293] The Commission's order determined that the navigable capacity of the River below the dam would be affected and at times would render impossible any navigation around the city of Milledgeville, the dam being located 4.3 miles upstream. The Court also held that the Commission's findings were supported by substantial evidence and in such circumstances they would not be disturbed. The Court sustained the Commission's finding that navigable waters were involved in the case and that the operation of the proposed project would affect adversely navigation thereon. The Court overruled the question of constitutionality with respect to petitioner's contention that neither Congress nor the Commission had jurisdiction over non-navigable streams by referring to the cases of *U.S.* v. *Appalachian Power Co.* (supra), *Oklahoma* v. *Atkinson Company,* 313 U.S. 508, 61 Supreme Court 50, 85 L.Ed. 1487 and others.

In all of the above cases it was assumed that the Court of Appeals had jurisdiction to review a determination of the Federal Power Commission that a license should be obtained to construct or to complete a hydroelectric project on either navigable or non-navigable tributaries, which in itself in indicative of the acceptance of the procedure here sought for review of the Commission's order.

Union strongly urges that the decision in *Carolina Aluminum Co.* v. *F.P.C.,* 97 F. 2d 435, (Cir. 4th 1938) is controlling. The Court there squarely held that the Commission's decision was not a reviewable "order" because it "embodies no decision which is capable of being enforced by anyone" and, while "the statute forbids the construction of any project" after a Commission's jurisdictional determination, "it does not authorize the Commission to [294] enter an order forbidding the construction." The Court's reasoning and decision in the *Carolina Aluminum* case is diametrically opposed to the Supreme Court's later ruling in *Rochester Telephone Corp.* v. *United States,* 307 U.S. 125 (1939) which states (l. c. 132 and 133):

> "Where a complainant seeks the Commission's authority under the terms of a statute and the Commission's action is followed by legal consequences * * *, or where the Commission's order denies an exemption from the terms of the statute * * *, the road to the courts' jurisdiction seems to be clear. There is a constitutional 'case' or 'controversy' * * *; and the suit is within the express language of the Urgent Deficiencies Act in that it is one 'to enjoin, set aside, or annul' an 'order of the Commission.' * * * While the penalties may be imposed by the statute for its violation and not for dis-

> obedience of the Commission's order, a favorable order would render the prohibitions of the statute inoperative. * * *"

Justice Frankfurter, in discussing so-called "negative" and "affirmative" orders, said "the concept 'negative orders' has not served to clarify the relations between administrative bodies and the courts but has rather tended to obscure them." (l. c. 142) and

> "We conclude, therefore, that any distinction, as such, between 'negative' and 'affirmative' orders, as a touchstone of jurisdiction to review the Commission's orders, serves no useful purpose, and insofar as earlier decisions have been controlled by this distinction, they can no longer be guiding." (l. c. 143)

A more serious question arises in passing upon the question of whether the Commission's determination or order is supported by substantial evidence. The reviewing power of this Court is limited to determining whether the Federal Power Commission's findings of fact are sup- [295] ported by substantial evidence. § 825(L)(b) states in part "The findings of the Commission as to facts, if supported by substantial evidence. shall be conclusive."

The Commission contends that it has all the constitutional power Congress possesses to regulate control of hydroelectric projects of this character, while Union contends that Congress has a right to regulate only because of its authority to regulate foreign and interstate commerce on navigable waters, although admitting that such power extended to non-navigable tributaries of a navigable river if the interests of navigation and flood control on the navigable river would be served by such project.

There is no question that Congress has authority over the non-navigable tributaries of a navigable river. In *State of Oklahoma* v. *Guy F. Atkinson Co.*, 313 U.S. 508, l. c. 523:

> "* * * And it is clear that Congress may exercise its control over the non-navigable stretches of a river in order to preserve or promote commerce on the navigable

> portions. *United States* v. *Rio Grande Dam & Irrigation Co.,* 174 U.S. 690, 703, 706, 708; *United States* v. *Utah,* 283 U.S. 64, 90. It is obvious that, at least incidentally, Congress has done precisely that in this case. Congress was not unmindful of the effect of this project on the navigable capacity of the river. In authorizing it, Congress exercised all the power it possessed to control navigable waters."

It is not necessary to decide respondent's contention that Congress has delegated to the Commission all of its constitutional authority over the construction of hydroelectric projects as the statute itself 23(b) sets forth ample jurisdiction to cover this case and at the same time leaves to state control projects on non-navigable waters where [296] "the interests of interstate or foreign commerce would [not] be affected," by expressly stating "permission is granted to construct such dam or other project works in such stream upon compliance with state laws."

The narrow question here presented is whether this Taum Sauk Project would affect the interests of interstate or foreign commerce. The Commission found that the interests of interstate commerce would be affected because the navigability of the Black River was affected and because the energy generated at such proposed project would be transmitted in interstate commerce by Union's interstate transmission lines.

The Commission's order held that Congress had jurisdiction over the stream (East Fork). Union does not take issue with this finding. Admittedly Congress has taken jurisdiction over the non-navigable tributaries of navigable waters and intends to retain and exercise such jurisdiction through the Federal Power Commission where any obstruction or construction on such non-navigable tributary would affect the interests of interstate or foreign commerce.

The order in part states "* * * In the past *the Commission has limited its investigation in this regard to a determination of whether a proposed project is capable of affecting the navigable capacity of any downstream navigable waters.*" The presiding examiner in this case similarly limited his decision. [Emphasis supplied].

The Commission's findings and order insofar as the issue of the effect on navigability is based upon the presiding examiner's report, which on this issue was adopted in full and its findings and order as respects the effect on the interests of interstate commerce by reason of the [297] electrical energy being transmitted in interstate commerce is its own conclusion. The presiding examiner made a finding that "The proposed Taum Sauk Project will be constructed, operated and maintained for the development of power to supply markets not only in Missouri, but also in the state of Illinois, thereby affecting the interests of interstate or foreign commerce" (R. 159) but expressly stated that he felt it unnecessary to decide the issue thus presented, because of his findings concerning effect upon navigable capacity.

We shall first address ourselves to the consideration of the substantiality of the evidence to sustain that part of the order finding that the navigability of the Black River would be affected. This being basically a factual issue, it will be necessary to review at length the facts as stipulated and as found by the Commission, along with its conclusions deduced therefrom. In order to analyze the factual situation and the effect of the project works upon the East Fork tributary to the Black River and its subsequent effect upon the navigability of the latter, it is necessary to describe somewhat in detail the project and its method of operation. The following summary, taken from the Report in the Record, includes to a limited extent the contention of both parties.

> "Initially, when the project plant is first employed in the generation of electric energy it is contemplated that the upper pool will have in storage up to a maximum of 4350 acre feet. The flow of water during generation of electricity from the upper pool to the lower pool will vary depending upon the amount of water contained in the upper pool. For example, when generating at the rate of 350,000 kilowatts, the rate of flow of water from the upper pool to the lower pool will vary depending on the amount of water in the [298] upper pool. The lower the level of water in the upper pool the

> greater the rate of flow from the upper pool to the lower pool. * * *"
>
> * * * * *
>
> "When the upper pool is filled there would be enough water stored to permit generation at the rate of 350,000 kilowatts to produce a total of approximately 2,750,000 kilowatt hours, corresponding to a full load operation of 350,000 kilowatts for about eight hours." (R. 87)

The pump-back operation "would take about 11 hours to fill the upper pool to 4350 acre feet," using power for the pumps at an average head of about 392,000 kilowatts, depending upon the storage of water in the upper reservoir.

The dam will have a free crest at an elevation of 750 feet and a spillway providing maximum water surface of the dam at 763 feet, with a discharge capacity of 70,000 cubic feet per second.

Union in the normal operation of the pool proposes to regulate the outflow through the dam when the water surface is at 750 feet or less by means of sluice gates capable of discharging from 2000 to 2800 cubic feet per second. Union intends to regulate the outflow through the dam to correspond to the inflow to the lower pool from feeding streams by means of sluice gates and appropriate gaging stations to record inflows and outflows. We further quote from the Report in the Record:

> "The Black River is downstream from the confluence of Taum Creek and the East Fork of the Black River and is part of the navigable water of the United States, being navigable from a point at the mouth of the East Fork four miles below the site of the proposed dam, to the mouth of the Black River."
>
> * * * * *
>
> [299] "In this case Union's position is that the construction, operation and maintenance of the Taum Sauk project works, is capable of having only an insignificant or de minimis effect upon the navigability of the Black River.

> "The Staff's position on the other hand, is that the facts agreed upon show that the project works are capable in certain circumstances of having a 'measurable' or 'pronounced' effect. The Staff's position is that the stipulated facts and the evidentiary support found in the exhibits received reflect a capability that the project works will have a substantial effect upon the navigability of the Black River and that therefore the license provisions are applicable. * * * It is Union's position that the 'capability' test advocated by the Staff is not the law. Union urges on the contrary that to establish licensing jurisdiction [on non-navigable streams] it must be shown that the construction, operation, and maintenance of the project works will have an inevitable effect on the navigability of the Black River." (R. 89–91)

Union cites for its position *United States* v. *Appalachian Electric Co.,* 23 F.Supp. 83, 105, and 107 F.2d 769 and 790. The Supreme Court reversed the Court of Appeals' decision dealing with this issue when it ascertained that the damsite was on a navigable stream, but Union contends the principles enumerated in the decision as it pertains to non-navigable streams would stand. *United States* v. *Appalachian Electric Co.,* 311 U.S. 377 (1940).

On this issue the Staff cites *Citizens Utilities Co.* v. *Federal Power Commission,* 279 F.2d 1 (1960) and *Carolina Aluminum Company,* 19 FPC 704 (1958) and contends the holding in such cases to be "that where a showing is made that the construction, operation and maintenance of hydroelectric project works located on non-navigable water is capable of having a measurable effect on navigable water [300] of the United States downstream that then the licensing provisions of the Act are applicable."

In the *Citizens Utility* case, the Court of Appeals for the Second Circuit held the Commission had licensing jurisdiction for the project, even though it was constructed across the river at a point where there was a question whether the river was navigable, as the operation of the dams was capable of affecting temporarily the flow of water at a lower point in the stream, which was navigable and did so in the *ordinary operations of such dams.*

The *Carolina Aluminum Company* case (supra) decided by the Commission held in effect that the project works were subject to the licensing provisions where "such hydroelectric development is capable of having [an effect] upon navigable capacity at points downstream." The Taum Sauk project works is a pump-back storage project, which facilities are different from the type of hydroelectric facilities which use the potential energy in natural flows of the stream to generate electric energy and which alternately store and release the natural flows from the stream. Further quoting or summarizing from the Report in the Record:

> "* * * As Union contemplates the operation water will be impounded only one time in the lower pool, causing a temporary reduction in the downstream stage and thereafter on a daily cycle the water in the lower pool will be pumped up to the upper pool and later released.
>
> "After the impounding of the water in the lower pool has been completed, it is expected by Union that water will be discharged through or over the dam in amounts equal to the inflow into the lower pool from the streams above and that, therefore, the streams below the project will not be affected by the existence or operation of the plant. On this basis it is claimed that [301] there will be no effect on the navigability of the Black River.
>
> "The Staff, on the other hand, claims that when physical conditions are considered in connection with the construction, maintenance, and operation of the project works, particularly in regard to the drainage conditions in the Upper Black River Basin and when the water flows which have been measured over past years are considered the only reasonable conclusion to be reached is that the project works have the capability of affecting the navigability of the Black River. * * *"
> (R. 94 and 95)

The record shows on mathematical calculations that the flows at the proposed dam of the lower pool would:

1. Equal or exceed 50 cubic feet per second approximately 50 per cent of the time;
2. Equal or exceed 100 cubic feet per second about 25 per cent of the time;
3. Equal or exceed 200 cubic feet per second about 10 per cent of the time;
4. Have exceeded 2,000 cubic feet per second less than ½ of 1 per cent of the time; and
5. Have exceeded 7,000 cubic feet per second on three occasions.

"These varying flow conditions when considered together with the physical character of the project works are capable of affecting navigability on the Black River in differing degrees dependent in large part upon the flow conditions at the times being considered [the navigability of the Black River is based upon evidence showing that ties and timbers were floated down the river and that float trips had been taken by flat-bottomed boats down the river]. In this connection, the Staff has given consideration to five situations where the proposed project works would be capable of affecting the navigability of the Black River, to wit:"

[302] a. during the filling period;
b. during high flows;
c. during malfunctions of facilities;
d. during emergency operations of the Taum Sauk plant; and
e. during average flows and normal operations of the project. (R. 95–96)

During the filling period, if 50 cubic feet per second were stored taken from the average flow of 105 cubic feet per second, the lower pool would fill in approximately 63 days. The water level, at the Annapolis gage of the Black River would be reduced about one-tenth of a foot and the river on the East Fork about 3.7 miles below the damsite would be reduced about one foot. This is a one-shot operation which should not be repeated. This slight diminution in flow through the filling period, in its temporary aspect and its lack of practical significance during that time is de minimis and not of substance as a basis for claiming that navigability is affected and that the Commission thus has jurisdiction.

Further quoting or summarizing from the Record, during high flow periods which had occurred three times in the past, the generating cycle would add to the natural peak flow past the dam of the lower pool by increasing it from 17,600 cubic feet per second to 21,800 cubic feet per second, and the dam at the lower pool, would reduce the natural stage below the dam by 0.2 feet to 0.4 feet with no plant operation. (R.98) The pumping cycle of itself would reduce the natural stage below the dam of the upper pool by 0.8 feet but the generating cycle would increase the stage below the dam above natural stage by one [303] foot during the high flows, such as occurred May 9–10, 1950.

> "During stream flows of 2,800 feet per second or less into the lower pool and for the normal cycles of generation and pumping for the projects works there would be no increase or decrease in the natural stage and flow below the project works, assuming no emergency operations, and no malfunctions of facilities. * * *" (R. 98)

The Examiner, however, engaged in these speculative considerations:

> "It cannot reasonably be said that the possibility of malfunction or mechanical failure does not exist in this project. There certainly exists the possibility of human or mechanical failure. In this project the possibility of such failure exists through the improper operation of stream gages, failure of the stream flow facilities to record correctly the inflows and outflows or to transmit flow information to the control points, clogging of the intake to sluiceway works, or failure of facilities. If there were malfunction during periods of flood and the generators were employed it would affect navigability severely, particularly because the effect of generation would be to add to the unusual accretion of water." (R. 99)

In another hypothetical situation the report sets forth that during a period of low flow the abrupt release of water through the sluiceway could result in the dumping of 2,000 cubic feet per second from the lower pool. This part of the Examiner's Report concludes with the statement:

> "* * * Most of the time navigability of the Black River would not be substantially affected but there will be times when it will be affected. The problem to be resolved, however, is not whether the Commission should extend its attention to situations where [304] the effect on navigability is not always substantial or is not continuous but whether under the law navigability will be affected to a measurable degree by the maintenance, construction, and operation of the project works. Here it will be so affected." (R. 100)

The Stipulation of Facts contained the following hypothetical calculation. (R. 81–82) The abnormal situation of the lower pool being full when a generating cycle is started and where the natural flow in the East Fork is 105 cubic feet per second; the natural flow in the Black River at the Annapolis gage 582 cubic feet per second; the sluice dam is closed and not operated; and a generating cycle at a rate of 350 megawatts (average turbine discharge 6,800 cubic feet per second) is started and continues until all of the water is withdrawn from the upper pool. Assuming all of the above facts were to occur simultaneously, the lower pool would overflow over the free crest of the dam for eight hours, and the East Fork below the dam would be increased to approximately 7 feet. The Lesterville gage on the Black River would increase 5.7, cresting about nine hours after the start of the generating cycle. Between the Lesterville gage and the Annapolis gage approximately 2100 acre-feet of valley storage would operate to reduce the increase in stage at the Annapolis gage from the 5.7 feet experienced at the Lesterville gage to 3.4 feet, cresting 14½ hours after the start of the generating cycle with a maximum rate of rise of approximately 0.6 feet per hour. As at the Lesterville gage the stage would subside gradually to the normal stage after the crest, and "On numerous occasions, natural conditions have caused both greater rates of rise and greater increases in stage in equal periods of time." (R. 82)

The normal operation of the project would as contemplated neither increase or decrease the natural flow on the [305] East Fork, and, absent a malfunction of the facilities, would have no effect upon the navigability of the Black River unless the flow would exceed 2,000 cubic feet per second, which it has only done ½ of 1 per cent of the time and that there would be in addition a malfunction of the sluice gates, which could handle a flow of 2,800 cubic feet per second, and the lower pool full when a generating cycle is started. The malfunctioning of facilities, unless the evidence establishes such falfunctioning during the normal course of operations, should not be presumed as hypothesized by the Commission. Even under the abnormal hypothesized situations posed by the Commission, the Stipulation of Facts and the Examiner's Report, there would be no change in the natural flow of water into the East Fork and thence the Black River if the generating cycle were stopped by Union. The pumping cycle, of course, would only reduce an abnormal high flow. In addition, as stipulated, "On numerous occasions, natural conditions have caused both greater rates of rise and greater increases in stage in equal periods of time." (R. 82).

The lengthy and complete Report of the presiding examiner, which is adopted by the Commission in its order, stresses hypothetical situations which could only be reasonably hypothesized during a period when the flow in the East Fork would exceed 2,800 cubic feet per second. Based on an 18-year record of flows, the flow at the damsite would not exceed 2,000 cubic feet per second 99½ per cent of the time and has only exceeded 7,000 cubic feet per second on three occasions during that period. The sluice gates are capable of discharging 2,800 cubic feet per second so that, absent any malfunctioning of the sluice gates, we are here dealing with an analysis of what might happen less than one-half of 1 per cent of the time. To [306] find an effect upon navigability, the examiner and the Commission then must hypothesize various malfunctions of the project during this less than ½ of 1 per cent of the time where either certain flood conditions or high flow conditions would prevail. (R. 95 and 96) The natural effect of such high flow conditions on navigability has caused a greater rate of rises in the stream and greater increases in stage during equal periods of time as stipulated in the Record. Under these circumstances, we fail to find substantial evidence upon which to base the Commission's finding that the navigability of the Black River would be affected.[2]

The Examiner's Report, which was adopted in toto by the Commission on this point, gives no consideration to the requested expert opinion of the Corps of Engineers of the United States Government, which stated that "construction and operation of the applicant's project would have no appreciable effect on the Clearwater reservoir project or navigation on the Black River." Said letter also contained a statement "The plans of the structure are satisfactory insofar as the interests of navigation are concerned. Terms and conditions for insertion in the license in the interest of navigation are not considered necessary." [3]

---

[2] "During stream flows of 2800 feet per second or less into the lower pool and for the normal cycles of generation and pumping for the project works there would be no increase or decrease in the natural stage and flow below the project works, assuming no emergency operations, and no malfunctions of facilities." (R. 98)

[3] "Exhibit 10 18 August 1960

"Chairman
Federal Power Commission
Washington 25 D.C.

"Dear Mr. Chairman:

"The Commission's letter dated 30 June 1960 requested comments and recommendations in regard to the application for license filed by Union Electric Company for proposed hydroelectric project No. 2277 to be located on East Fork of Black River in Missouri.

"The proposed dam would be located approximately 15 miles upstream from the upper limit of the Corps of Engineers' Clearwater Reservoir project and about 85 miles above the head of an authorized navigation project (inactive) on the Black River. Construction and operation of the applicant's project would have no appreciable effect on the Clearwater Reservoir project or navigation on the Black River.

"The plans of the structures are satisfactory insofar as the interests of navigation are concerned. Terms and conditions for insertion in the license in the interest of navigation are not considered necessary.

"One copy of the application is returned as requested.

Sincerely yours,

/s/ ROBERT M. TARBOX
ROBERT M. TARBOX,
Colonel, Corps of Engineers,
Assistant Director of Civil Works
for Southwestern Divisions."

[307] A greater part of the Commission's order advances the novel theory that the Commission has jurisdiction over the project works by reason of the fact that the electric energy generated at such works would be transmitted in interstate commerce. This viewpoint is a complete departure from previous Commission policies. The presiding examiner was asked to pass upon this issue but did not do so, basing his recommendation for licensing on the effect of the project works on navigation downstream.[4]

---

[4] Pertinent parts of the record are:

"The Examiner stated that he felt it unnecessary to decide the issue thus presented because of his findings concerning effect upon navigable capacity. Although he did not base his decision thereon, he did make the following finding of fact:

'The proposed Taum Sauk project will be constructed, operated and maintained for the development of power to supply markets not only in Missouri but also in the state of Illinois, thereby affecting the interests of interstate or foreign commerce." (R. 159)

"A similar argument was advanced by staff and rejected by the Circuit Court in *United States* v. *Appalachian Power Co.*, 107 F.2d 769 (4th Cir. 1938), at the same time that that court endorsed a narrow concept of navigability. The Circuit Court was reversed on this latter ground by the United States Supreme Court at 311 U.S. 377 (1940) in a way which made it unnecessary to decide issues presented only in connection with non-navigable streams. This is the first time that the Commission itself has decided the issue, whether an effect on the interests of interstate commerce other than an effect on navigable capacity is sufficient to require the licensing of projects on non-navigable waters under the mandate of Section 23(b). Although it may be technically unnecessary to the decision in this case, an issue of such importance must not be allowed to go unresolved any longer since there can be little doubt that this country in the years ahead will become overwhelmingly more dependent upon the maximum development of its water resources in all their uses.

* * * * * * * *

"In view of these facts, we cannot hold as requested by Union that 'the interests of interstate commerce' in Section 23(b) are limited to 'effect upon navigable capacity.' On the contrary, we hold that the development of power for interstate transmission and use is such an effect upon the interests of interstate commerce within the meaning of Section 23(b) that a project proposed for that purpose, which is to be constructed in and will utilize non-navigable waters over which Congress has jurisdiction under the commerce clause, must be licensed. If the water resource is one over which Congress has jurisdiction and if the water resource has the potential of affecting interstate commerce in any manner, it is our duty to license its use to preserve the rights of the people in the resource. In this case, the proposed development of power for interstate transmission and use is sufficient evidence of the East Fork's potential to affect interstate commerce to cause us to require a license, even if it were not shown that

[308] The Federal Power Act originally enacted on June 10, 1920, as the Federal Water Power Act was a successor to § 18 of the Rivers and Harbors Act of 1899 and succeeding acts. Section 23(b) of the Act (16 U.S.C.A. 817) was amended in 1935 by adding the first sentence of that Section, which prohibits all unlicensed hydroelectric projects on navigable waters in the United States. The second sentence of that Section does not prohibit unlicensed hydroelectric projects on non-navigable waters but only calls for licensing if the proposed construction would affect the interest of interstate or foreign commerce. Union contends that a proper interpretation of that part of § 23(b) relating to non-navigable waters should be confined to the determination of whether the construction of such project would affect commerce on navigable waters, and contends that the Commission's interpretation or determination broadening the Act to include any projects on non-navigable waters where the electric energy therefrom is transmitted in interstate transmission lines is contrary to the construction of said Section which had been followed by the Commis- [309] sion itself for many years prior to the issuance of its order and opinion in this case, and further contends that such interpretation conflicts with applicable judicial decisions. Under the Rivers and Harbors Acts, an Act of Congress was necessary before a dam could be constructed in navigable waters or in a non-navigable stream if such project would constitute an obstruction to the navigable capacity of navigable waters. The Federal Water Power Act of 1920 created the Federal Power Commission and empowered it to perform the licensing functions listed in §§ 4(e) and 23(b) of the Act, theretofore exercised by Congress. The United States Supreme Court in state of *Oklahoma* v. *Guy F. Atkinson Co.*, 313 U.S. 508; 61 Supreme Court 1050; 85 L.Ed. 1487, held specifically that "Congress may exercise its control over the non-navigable stretches of a river in order to preserve or promote commerce on the navigable portions," and in authorizing such control Congress exercised all the power it possessed to control navigable waters.

---

downstream navigable capacity will be affected. We concur, however, in the conclusion of the Examiner that the Commission has license jurisdiction because of effect on downstream navigable capacity." (R. 162–163)

Union contends that the Court in *United States* v. *Appalachian Power Co.*, 311 U.S. 377, 61 Supreme Court 291, 85 L.Ed. 243 delineated the constitutional limit of Congress's power to prohibit and to license water power projects founded upon its authority to regulate commerce on those waters; and, it is the interest of commerce on water and not the interest of commerce conducted by other media which must be affected by the construction of a hydroelectric project on a non-navigable stream in order to bring the licensure provisions of the Act into effect.

We are not in accord with Union's narrow construction of congressional authority over the interests of commerce on navigable waters. The *Appalachian* case originated by the Government seeking an injunction to enjoin construc[310]tion of a dam without a license from the Federal Power Commission. The United States Court of Appeals, Fourth Circuit, in *United States* v. *Appalachian Electric Power Co.*, 107 F.2d 769, adopted the restricted theory on the narrow issue of impairment of navigablity on downstream capacity stating, l.c. 790:

> "The plaintiff [U. S.] was not entitled to the injunction in this case unless it established an existing or presently threatened impairment of navigable capacity of the Kanawha [river]; and * * * the plaintiff must show that the injury sought to be provided by the injunction will be necessary or practically certain, and not merely the probable result of the acts whether intended or not."

That Court was expressly reversed by the Supreme Court on appeal, the latter Court holding, 311 U.S. 377, l.c. 426:

> "In our view, it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. By navigation respondent means no more than operation of boats and improvement of the waterway itself. In truth the authority of the United States is the regulation of commerce on its waters. Navigability, in the sense just stated, is but a part of this whole. Flood protection, watershed development, recovery of the cost of improve-

> ments through utilization of power are likewise parts of commerce control. * * * That authority is as broad as the needs of commerce."

We believe without delineating all of them that there are other considerations such as proper development of watershed areas, flood control and proper utilization of natural resources that would have an effect upon navigability and as such would be proper items of consideration in passing upon whether the interest of foreign or interstate commerce would be affected. All of these factors [311] relate, of course, to the development and use and continued use of the water resources of the nation. It would appear that the method of generation of electrical energy in and of itself would be of no concern to the Commission, unless the proposed project works would affect the interests of interstate or foreign commerce on the navigable waters of the United States. Admittedly, the Federal Power Commission has no control over the construction and operation of steam-generating plants that do not fall within the category mentioned in § 23(b).

The Supreme Court in *Utah Power and Light Co.* v. *Pfost*, 286 U.S. 165; 52 Sup.Ct. 548; 76 L.Ed. 1038, in dealing with the issues raised by a state tax on the generation of electrical energy by the state of Idaho and resisted by the Power Company on the basis that its operation was in interstate commerce and hence the tax a burden thereon held that the generation of electricity was intra-state activity regardless of whether the electricity was transmitted interstate. The question there posed by the Court was:

> "Upon the facts of the present case is the generation of electrical energy, like manufacture or production generally, a process essentially local in character and complete in itself; or is it so linked with the transmission as to make it an inseparable part of a transaction in interstate commerce?"

* * * * *

> "While conversion and transmission are substantially instantaneous, they are, we are convinced, essentially separable and distinct operations (l. c. 179) * * * the generator and the transmission lines perform different

> functions, with a result comparable, * * * to the manufacture of physical articles of trade and their subsequent shipment and transportation in commerce." (l. c. 180 and 181)

[312] and concluded:

> "We are satisfied, upon a consideration of the whole case, that the process of generation is as essentially local as though electric energy were a physical thing; and to that situation we must apply, as controlling, the general rule that commerce does not begin until manufacture is finished, and hence the commerce clause of the constitution does not prevent the state from exercising exclusive control over the manufacture. *Cornell* v. *Coyne,* 192 U.S. 418, 428–429 'Commerce succeeds to manufacture, and is not a part of it.' *United States* v. *E. C. Knight Co.,* 156 U.S. 1, 12."

The Court then went on to hold that the petitioner's production of electrical energy in Idaho was purely intra-state business and that its transmission across state lines was interstate business.

In the light of the fact that the generation of electrical energy is a local or intra-state activity, we fail to see any difference between a generation of such energy by hydroelectric projects on non-navigable streams and the generation of such energy by steam plants that would support the doctrine now announced by the Federal Power Commission that the mere transmission of electrical energy in interstate lines in and of itself would give it jurisdiction to license the generating project. While the Commission, of course, has authority over the interstate transmission lines under Part II of the Federal Power Act, that power, in our opinion, is without relevancy to its authority and responsibility to deal with the matter of licensing under § 23(b), as the question of the effect of a construction project on interstate commerce must be viewed in its relation to navigable waters. The Commission's jurisdiction thereof must logically rest upon its delegated congres- [313] sional jurisdiction over the interests of commerce on navigable waters.

What would happen to the Commission's jurisdictional basis on this theory, if the energy generated is not transmitted in interstate lines or, if after a period of initial transmission, such interstate use is permanently discontinued? The basis of such jurisdiction ceases to exist, whereas, the basis of navigability once having been found to exist, continues uninterrupted. There does not appear to be any correlation between generation of electrical energy in and of itself and the interests of foreign or interstate commerce.

This same issue was considered by the Court of Appeals for the Fourth Circuit in the *Appalachian Electric Power Co.* case (supra) where a contention was made that the Commission had jurisdiction over dams proposed to be constructed on non-navigable waters irrespective of the effect of the dam on navigable waters because the dam is intended to transmit electric power outside of the state of Virginia. There the Commission contended "Thus the primary purpose of the legislation was the control of water power development not of navigation." (l.c. 793), which the Court answered stating "We do not think this broad construction of the Act based on the interstate commerce power, to the extent that it is dissociated from navigation, is tenable either on the basis of statutory construction or constitutional authority." (l.c. 793) and

> "The broad construction of the section now contended for runs counter to established legal principles. Where the interests of navigation are not involved (and where the United States does not itself possess property rights) the control of the use of the flowing water and the rights therein of riparian own- [314] ers are subject to the laws of the several states. * * * If the river were federally navigable the rights of the riparian owners would, of course, be fully subject to the federal servitude in the interests of navigation; but the riparian owner on a non-navigable stream is entitled to reasonable use of the flowing waters (not impairing downstream navigable capacity) subject to no easement in favor of navigation; and this is a property right which cannot be taken from him without just compensation. * * *

* * * * *

> "We therefore cannot adopt the plaintiff's construction of section 23 that the Commission has jurisdiction over non-navigable streams under the interstate commerce clause irrespective of the interests of navigation." (l. c. 107 F.2d 796)

While the *Appalachian* case was reversed by the Supreme Court on the ground that the project was to be constructed on a navigable river the Court did not pass upon the Court of Appeals' determination with respect to the application of § 23(b) to projects on non-navigable waters.

The construction now contended for by the Federal Power Commission is contrary to its own published decision in the *California Oregon Power Co.*, 13 F.P.C. 1 (1954), case where the Commission rejected as "unwarranted" a conclusion of the trial examiner that a license was required under § 23(b) because the energy generated would be transmitted in interstate commerce. The Commission there said:

> "As stated above, the Examiner found that proposed Project No. 2082 will and the five existing projects are utilizing water for the generation of electric energy which in turn is transmitted in interstate commerce, and he concluded that in such way they affect the interests of interstate commerce, and [315] are therefore subject to the licensing authority of the Commission. We reject that conclusion as unwarranted under the Federal Power Act. (l.c. 13 F.P.C. 3)"

Apparently the Commission had uniformly construed its authority or jurisdiction in conformity with the *California Oregon Power Co.* case since 1920 until its change in the present case. This represents a decided departure from its administrative construction of that statute, but, of course, would not necessarily be controlling if it did actually have jurisdiction and authority under § 23(b). It is, however, suggestive that its contention now is a novel one not based upon generally acknowledged limits of jurisdiction adhered to throughout the years.

Union's Declaration of Intention was the 212th such Declaration under § 23(b) since 1920. Of the 211 prior declarations, the Commission found a license was required in 77 cases [Federal Power Commission 41st Annual Report (1961) p. 49] In its Forty-Second Annual Report (1962), page 23, the Commission, in commenting upon its Opinion and Order in this proceeding, stated:

> "Past Commission findings with respect to hydroelectric projects not affecting Government lands or dams have been limited to determinations of whether the projects occupied navigable waters of the United States or affected their navigable capacity."

This administrative view and construction of the Commission's jurisdiction under 23(b) being limited to navigable waters or on non-navigable waters that would affect the navigability of navigable waters has long been known to Congress and no change having been made therein, "Under the established rule Congress must be taken to have approved the administrative construction and thereby [316] to have given it the force of law". *Helevering* v. *R. J. Reynolds Tobacco Co.*, 306 U.S. 110, 114–115, 59 S.Ct. 423, 425–426.

We, therefore, find that the Commission's determination that it has jurisdiction of the project works solely on the ground that the electrical energy will be transmitted in interstate commerce is unsound and not supported in law.

In the situation at hand it appears from the record that the Taum Sauk Project, absent a short period of construction, would have no effect whatever upon the normal flow of the East Fork of the Black River; that in the usual and ordinary operation of the project all of the normal flow of the East Fork would flow in the usual and normal amounts below the lower reservoir of the project and hence would and could not have any effect upon the navigability of the Black River; that only in times of high abnormal flow with a malfunctioning of the facility including a continued operation of the generating cycle would the flow be increased so that possibly navigation might be affected or impaired by an increased flow into the Black River. It would thus appear that there are no factual findings supported by substantial evidence upon which to base a determination that such project would affect the interests of interstate or foreign commerce and the navigability of the Black River. The only expert opinion in the record is from the office of the Chief Engineer of the United States Corps of Engineers and it is to the contrary. The hypothetical situations propounded in the Commission's Opinion and Order are too conjectural upon which to base the Commission's finding of effect on navigability. Such hypothetical situations would occur only upon a combination of adverse circumstances coupled with malfunctioning and inept operation that should not be presumed. In ad[317]dition "on numerous occasions, natural conditions have caused both greater rates of rise and greater increases in stage in equal period of time" (R. 82) than the hypothetical conditions propounded by the Commission. The Commission's theory of jurisdiction based solely on interstate transmission of electrical energy generated at the project is unsound and not warranted under the law.

This project is not without regulation, as both the state of Missouri and the county of its location have certain regulatory rights which we must presume will be properly administered. The project itself is local in character and intra-state in its operation of generating electrical energy and upon the evidence contained in the record would not have any effect upon the navigability of the Black River nor would the interests of interstate or foreign commerce be affected.

If in the operation of the project it later develops at any time in the future that the navigability of the Black River is impaired or threatened to be impaired, the Commission would have authority under § 4(g) of the Act to issue an appropriate order, including an order to prevent further operation of the project without a license. Section 4(g) of the Act empowers the Commission

> "(g) Upon its own motion to order an investigation of any occupancy of, or evidenced intention to occupy, for the purpose of developing electric power, public lands, reservations, or streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States by any person, corporation, state or municipality and to issue such order as it may find ap-

> propriate, expedient, and in the public interest to conserve and utilize the naviga- [318] tion and water-power resources of the region. [16 U.S. C.A. 797(g)]"

Under that Section orders have been issued by the Commission requiring the proprietor of an existing project to apply for a license for maintenance and operation of the project. And such orders have been upheld. *Pennsylvania Water & Power Co.* v. *Federal Power Commission* (D.C.Cir. 1941), 123 F.2d 155; *Montana Power Company* v. *Federal Power Commission* (D.C.Cir. 1950), 185 F.2d 491.

This proceeding, setting aside the Commission's order and findings would have no effect upon a later proceeding under § 4(g) as this decision is based solely on the record made in this case. If evidence is later adduced upon which to base a finding of effect upon the navigability of the Black River, the Commission could make a finding and issue an order in accordance therewith and any substantial evidence showing an effect upon the navigability of the Black River would suffice to meet the proper legal standards.

We, therefore, hold that the order, and the findings and conclusion of the Commission upon which it is based is set aside as erroneous in law and unsupported by substantial evidence.

[319] In United States Court of Appeals for the Eighth Circuit

No. 17,142—September Term, 1963

UNION ELECTRIC COMPANY, PETITIONER,

*v.*

FEDERAL POWER COMMISSION

On Petition for Review of Order of the Federal Power Commission

*Decree—January 13, 1964*

This matter came on to be heard on the Petition to Review the Opinion and Order of the Federal Power Commission dated April 19th, 1962, (Federal Power Commission Docket No. E-6927), and was argued by counsel.

On Consideration Whereof, It is now here Ordered, Adjudged and Decreed by this Court that the Opinion and Order of the said Power Commission in this matter be, and the same is hereby, set aside, in accordance with the Opinion of this Court this day filed herein.

---

[320] [File endorsement omitted]

## IN UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

No. 17142 [Title omitted]

*Respondent's Petition for Rehearing—Filed January 31, 1964*

Pursuant to Rule 15 of the rules of this Court, respondent Federal Power Commission respectfully petitions for rehearing and reconsideration of the decision in the above-entitled case.

Reserving without further argument our objection to this Court's decision that there was insufficient evidence to support the Commission's finding that Union's Taum Sauk project affects interstate commerce through its effect on the navigability of the Black River, we here request only that the Court grant rehearing to reconsider its decision (slip op. pp. 28–34) that the evidence does not support the Commission's finding that the project "affects the interests of interstate commerce" entirely apart from its effect on navigability.

[321] In holding that local generation of electric energy cannot "affect" interstate commerce unless it affects navigation or navigability, the Court overlooked the long line of decisions to the effect that the local production of goods "affects" interstate commerce if some of the goods are shipped interstate or are sold to companies operating interstate (*e.g., N.L.R.B.* v. *Jones & Laughlin Steel Corp.*, 301 U.S. 1, 40–41; *Bon Hennings Logging Co.* v. *N.L.R.B.*, 308 F. 2d 548, 550–551 (CA 9); *Jeffery DeWitt Insulator Co.* v. *N.L.R.B.*, 91 F. 2d 134, 140 (CA 4), certiorari denied, 302 U.S. 731; *N.L.R.B.* v. *Schmidt Baking Co.*, 122 F. 2d 162, 163 (CA 4); *N.L.R.B.* v. *Stremel*, 141 F. 2d 317 (CA 10); *N.L.R.B.* v. *West Kentucky Coal Co.*, 116 F.

2d 816, 819 (CA 6); *N.L.R.B.* v. *Sunshine Mining Co.*, 110 F. 2d 780, 784 (CA 9), certiorari denied, 312 U.S. 678; *N.L.R.B.* v. *Good Coal Co.*, 110 F. 2d 501, 502 (CA 6), certiorari denied, 310 U.S. 630) and the cases unequivocally applying the same rule to the local generation of electric power (*Amalgamated Ass'n of Street, Electric Ry. etc.* v. *Wisconsin Employment Relations Board*, 340 U.S. 383, 391–392; *Consolidated Edison Co.* v. *N.L.R.B.*, 305 U.S. 197; *Southern Colorado Power Co.* v. *N.L.R.B.*, 111 F. 2d 539 (CA 10); *Virginia Electric & Power Co.* v. *N.L.R.B.*, 115 F. 2d 414, 415–416 (CA 4), reversed on other grounds, 314 U.S. 469; *N.L.R.B.* v. *West Texas Utilities Co.*, 119 F. 2d 683, 684 (CA 5); *cf. Meeker Cooperative Light & Power Ass'n* v. *Phillips*, 158 F. 2d 698, 699 (CA 8), affirming 63 F. Supp. 733 (D. Minn.)).

The Court (slip op. pp. 29–30) further overlooked the numerous decisions after *Utah Power and Light Co.* v. *Pfost*, 286 U.S. 165, which hold that a local activity validly subject to state taxation may "affect" interstate commerce so as to be subject to federal regulation under the commerce clause. See Respondent's brief, p. 25, n. 11; *Santa Cruz Fruit Packing Co.* v. *N.L.R.B.*, 303 U.S. 453, 466.

The Court overlooked the fact that Union's Taum Sauk project is operated by the use of "interstate" power and [322] thus "affects" interstate commerce. *Kingsbury Electric Cooperative, Inc.* v. *N.L.R.B.*, 319 F. 2d 387 (CA 8). *Cf. N.L.R.B.* v. *Reliance Fuel Oil Corp.*, 371 U.S. 224; *N.L.R.B.* v. *Townsend*, 185 F. 2d 378, 382 (CA 9), certiorari denied, 341 U.S. 909; *Amalgamated Meat Cutters, etc.* v. *Fairlawn Meats*, 353 U.S. 20, 22; *Howell Chevrolet Co.* v. *N.L.R.B.*, 346 U.S. 482.

The Court overlooked the underlying purpose of Part I of the Federal Power Act, which is to develop the power potential of the federal waters in the manner best promoting all types of "beneficial public purposes" (Section 10(a)), of which navigability is but one of many. So far as project works on non-navigable waters are concerned, there are two conditions for Commission licensing jurisdiction: (1) that they be located "across, along, over, or in [a] stream * * * over which Congress" has commerce-clause jurisdiction; and (2) that the

Commission shall find that the construction would affect interstate commerce. Condition (1) clearly is met in the present case (slip op. pp. 27–29). Condition (2), *i.e.*, effect on interstate commerce, is the only issue in the present case, and that issue is irrelevant to any distinction between hydro and steam projects.

Respectfully submitted.

RICHARD A. SOLOMON,
*General Counsel,*
HOWARD E. WAHRENBROCK,
*Solicitor,*
JOSEPHINE H. KLEIN,
*Attorney for respondent,*
*Federal Power Commission,*
*Washington, D.C., 20426.*

JANUARY, 1964.

[323] CERTIFICATE OF COUNSEL

I hereby certify that the attached petition for rehearing is submitted in good faith and is believed to be meritorious.

JOSEPHINE H. KLEIN,
*Attorney,*
*Federal Power Commission,*
*Washington, D.C., 20426.*

JANUARY 31, 1964.

[324] [Title omitted]

In United States Court of Appeals for the Eighth Circuit

No. 17142.—September Term, 1963

*Order denying rehearing—February 13, 1964*

Petition of respondent for rehearing filed in this cause having been considered, It is now here Ordered by this Court that the same be, and it is hereby, denied.

[325] [Title omitted]

In United States Court of Appeals for the Eighth Circuit

No. 17142.—September Term, 1963

*Order staying issuance of certified copy of decree—February 20, 1964*

On consideration of the motion of respondent for a stay of certified copy of Decree in this cause pending a petition to the Supreme Court of the United States for a writ of certiorari, it is now here Ordered by this Court that the issuance of certified copy of decree herein be, and the same is hereby, stayed through March 24, 1964, and if within said time there is filed with the Clerk of this Court a certificate of the Clerk of the Supreme Court of the United States that a petition for writ of certiorari and record have been filed, the stay hereby granted shall continue until the final disposition of the case by the Supreme Court.

---

[326] [Title Omitted]

In the United States Court of Appeals for the Eighth Circuit

No. 17142.—September Term, 1963

*Order further staying issuance of certified copies of Decree—March 24, 1964*

On Application of Counsel for the Respondent, It is now here Ordered that issuance of certified copies of Decree in this cause be, and are hereby, stayed to and including May 13, 1964.

---

[327] [Clerk's Certificate to foregoing transcript omitted in printing]

[328] Supreme Court of the United States

No. ......., October Term, 1963

**FEDERAL POWER COMMISSION, PETITIONER,**

*v.*

**UNION ELECTRIC COMPANY**

---

*Order Extending Time To File Petition for Writ for Certiorari—May 8, 1964*

---

UPON CONSIDERATION of the application of counsel for petitioner,

IT IS ORDERED that the time for filing petition for writ of certiorari in the above-entitled cause be, and the same is hereby, extended to and including May 28, 1964.

BYRON R. WHITE,
*Associate Justice of the Supreme Court of the United States.*

[329] Supreme Court of the United States

No. 123, October Term, 1964

**FEDERAL POWER COMMISSION, PETITIONER,**

*vs.*

**UNION ELECTRIC COMPANY**

*Order Allowing Certiorari—October 12, 1964.*

The petition herein for a writ of certiorari to the United States Court of Appeals for the Eighth Circuit is granted.

And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

U.S. GOVERNMENT PRINTING OFFICE: 1964